ORDER NO. HAD85062568C2

Service Manual

LW/MW/FM Stereo Radio with Cassette Tape Deck and Record Player

Stereo Music Centre

SG-X7L

Color

(K)...Black Type

Color	Area
(K)	[EK]. . . . United Kingdom
(K)	[EF]. . . . France

SPECIFICATIONS

AMPLIFIER SECTION

Power Output ..... MPO: 10WX2(THD 10%, 4Ω)
Output Impedance ..... **4**~**16** Ω
Input sensitivity & Impedance:
Mic ..... **1.5** mV, **1.5** kΩ
Tone Control ..... + **6** dB, − **12** dB at **10** kHz
Loudness Control ..... + **6** dB at **100** Hz
(Volume at − **30** dB position)

FM TUNER SECTION

Frequency Range ..... **87.5** MHz ~ **108** MHz
Intermediate Frequency (IF) 10.7MHz
Sensitivity ..... **3.8** μV (at 1kHz S/N **26**dB, Mod. **40**kHz)
Image Ratio ..... **35** dB (at **98** MHz)
Signal/Noise Ratio ..... Mono: **65** dB (IHF)
Distortion ..... Mono : **0.3** %
Stereo : **0.5** %
Stereo Separation ..... **35** dB (at 1kHz)

AM TUNER SECTION

Frequency Range ..... MW: **527** kHz ~ **1605** kHz
LW: **150** kHz ~ **350** kHz
Intermediate Frequency (IF) ..... **450** kHz(EF)
468 kHz(EK)
Sensitivity ..... MW: **200** μV m(1MHz)
LW: **500** μV m(250kHz)

PHONO SECTION

Turntable System ..... Belt Drive, Automatic Turntable
Turntable Size ..... **28** cm
Turntable Speed ..... 33-1/3 rpm and 45 rpm
Phono Motor ..... DC Servo Motor
Cartridge ..... Ceramic Cartridge (EPC-13STH)
Stylus ..... Sapphire (EPS-41ST)
Stylus Pressure ..... **5.5** g

TAPE DECK SECTION

Deck System ..... Auto-Stop Cassette System with Pause Control
Track System 4-Track, 2-Channel
Recording System ..... AC Bias (**53** kHz)
Erasing System ..... Magnet
Tape Speed ..... 4.75 cm/sec.
Frequency Response ..... **50** Hz ~ **12** kHz
Wow & Flutter ..... **0.2** % (WRMS)
Signal/Noise Ratio ..... **40** dB (A-WTD)

GENERAL

Power Consumption ..... **30** W
Power Supply ..... For United Kingdom: AC**240**V, **50**/**60**Hz
For France: AC**220**V, **50**/**60**Hz
Dimensions (W×H×D) ..... **380** mm× **129.5** mm× **408** mm
Weight ..... **3.8** kg

*Specifications are subject to change without notice for further improvement.

Panasonic

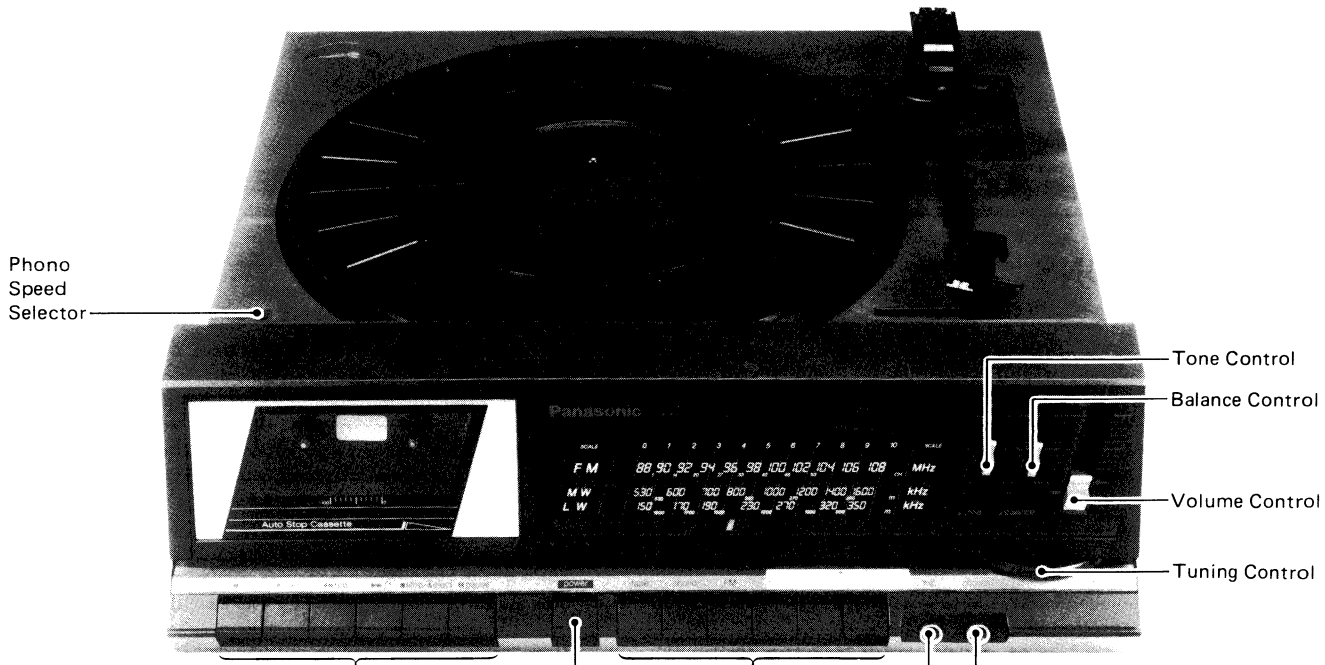
Matsushita Electric Trading Co., Ltd.
P.O.Box 288, Central Osaka, Japan

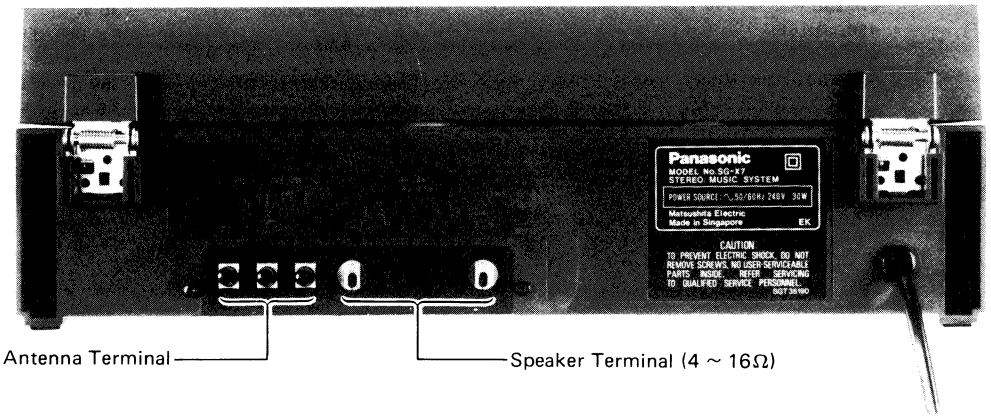
SG-X7L

■ CONTENTS

	Page
SPECIFICATIONS	1
LOCATION OF CONTROLS	2
DISASSEMBLY INSTRUCTIONS	3
MEASUREMENTS AND ADJUSTMENTS	4, 5
ADJUSTMENT POINTS	6
DIAL CORD STRINGING GUIDE	6
REPLACEMENT PARTS LIST	7, 8, 17
SCHEMATIC DIAGRAM	9, 10
BLOCK DIAGRAM	11, 12
TERMINAL GUIDE	13
WIRING CONNECTION DIAGRAM	14
CIRCUIT BOARD DIAGRAM	15, 16
PARTS LOCATION OF CABINET AND CHASSIS	18
REPLACEMENT PARTS LIST OF CABINET AND CHASSIS	19
REPLACEMENT PARTS LIST OF RECORD PLAYER	19
PARTS LOCATION OF RECORD PLAYER	20
PARTS LOCATION OF CASSETTE TAPE DECK	21
REPLACEMENT PARTS LIST OF CASSETTE TAPE DECK	22

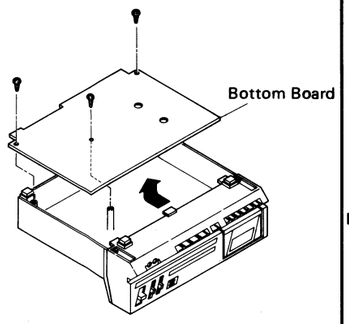
■ LOCATION OF CONTROLS



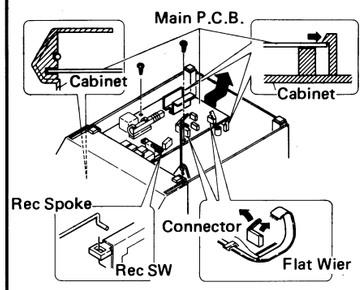


■ DISASSEMBLY INSTRUCTIONS

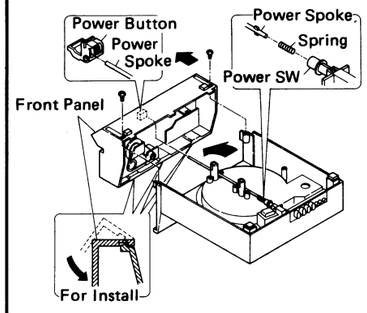
❶ Remove the Bottom Board



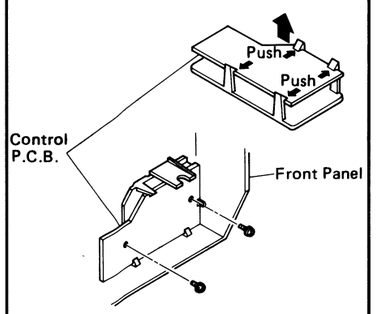
❷ Remove the Main P.C.B.



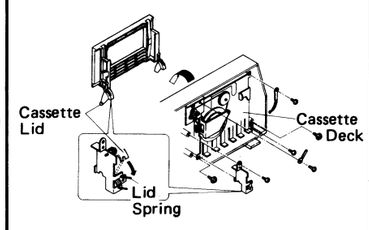
❸ Remove the Front Panel



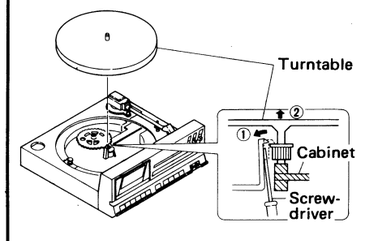
❹ Remove the Control P.C.B.



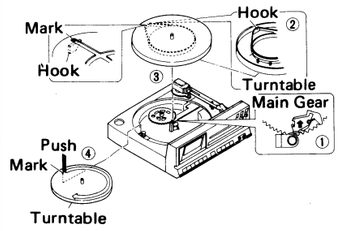
❺ Remove the Cassette Deck and Lid



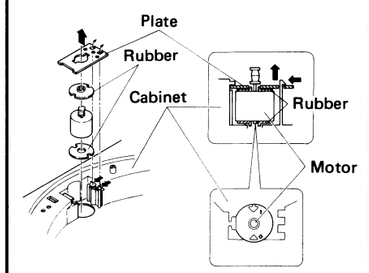
❻ Remove the Turntable



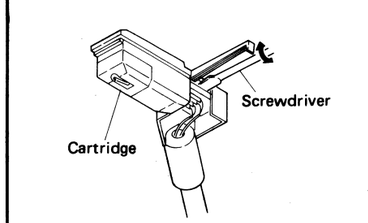
❼ Install the Turntable



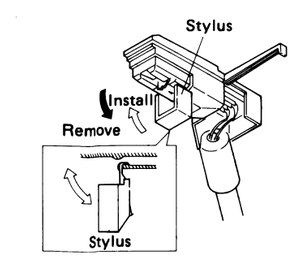
❽ Remove the Phono Motor



❾ Remove the Cartridge



❿ Remove the Stylus



- **Replace the Parts on P.C.B.**
  - **Main P.C.B.** ..... Refer to ❶, ❷
  - **Control P.C.B.** ..... Refer to ❶~❹
- **To Remove the Front Panel** ..... Refer to ❶~❸
- **To Remove the Cassette Deck and Lid** ... Refer to ❶~❸, ❺
- **To Remove the Turntable** ..... Refer to ❶, ❻
- **For Install the Turntable** ..... Refer to ❼
- **To Remove the Phono Motor** ..... Refer to ❶, ❻, ❽
- **To Remove the Cartridge** ..... Refer to ❾
- **To Remove the Stylus** ..... Refer to ❿

■ MEASUREMENTS AND ADJUSTMENTS

● Radio

Control Positions

- Volume Control ..... Maximum
- Tone Control ..... Center
- Balance Control ..... Center
- Output of signal generator should be no higher than necessary to obtain output reading.
  Make certain that speaker system is connected to the receiver when adjusting (or use relivant dummy load resistors).

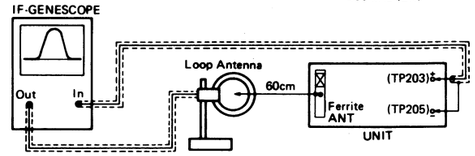
Test Equipments

- IF-Genescope
- Loop Antenna
- AM Signal Generator
- DC Voltmeter
- AC Voltmeter
- Oscilloscope
- FM Signal Generator
- FM Dummy Antenna (75Ω Unbalanced)
- Frequency Counter
- FM Stereo Signal Generator
- Distortion Meter

AM-IF ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Place unit into MW position.
3. Place the radio dial setting to point of noninterference.
4. Adjust **T203** for maximum output and symmetrical curve.

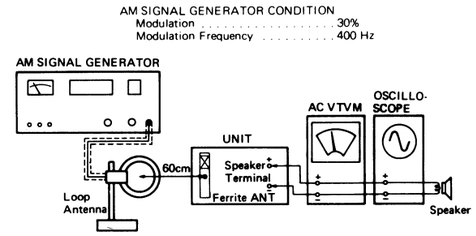
GENESCOPE CONDITION
Frequency ..... 450 kHz (EF)
468 kHz (EK)



MW-RF ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Place unit into MW position.
3. Place the radio dial and signal generator setting to **510 kHz.** **(Set the dial pointer to the left end of the scale or lower frequency edge.)**
4. Adjust **L203** for maximum output.
5. Place the radio dial and signal generator setting to **600 kHz.**
6. Adjust **L202** for maximum output.
7. Place the radio dial and signal generator setting to **1670 kHz.** **(Set the dial pointer to the right end of the scale or upper frequency edge.)**
8. Adjust **CT204** and **CT203** for maximum output.
9. Repeat steps 3. ~ 8.

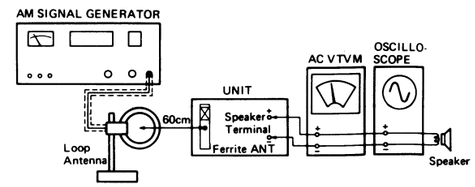
AM SIGNAL GENERATOR CONDITION
Modulation 30%
Modulation Frequency ..... 400 Hz



LW-RF ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Place unit into LW position.
3. Place the radio dial and signal generator setting to **143 kHz.** **(Set the dial pointer to the left end of the scale or lower frequency edge.)**
4. Adjust **L209** for maximum output.
5. Place the radio dial and signal generator setting to **145 kHz.**
6. Adjust **L208** for maximum output.
7. Place the radio dial and signal generator setting to **353 kHz.** **(Set the dial pointer to the right end of the scale or upper frequency edge.)**
8. Adjust **CT206** and **CT205** for maximum output.
9. Repeat steps 3. ~ 8.

AM SIGNAL GENERATOR CONDITION
Modulation 30%
Modulation Frequency ..... 400 Hz

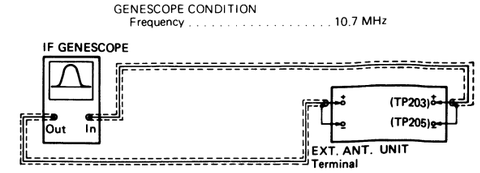


FM-IF ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Place unit into FM position.
3. Place the radio dial setting to point of noninterference.
4. Adjust **T201** for maximum amplitude and symmetrical curve. (Refer to Fig. 1)
5. Adjust **T202** for maximum amplitude and proper linearity between about ±100kHz markers. (Refer to Fig. 2)

Note: Before adjusting, turn the corest of **T202** fully counterclockwise.

GENESCOPE CONDITION
Frequency ..... 10.7 MHz



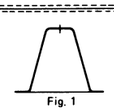


Fig. 1

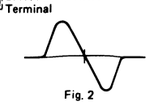


Fig. 2

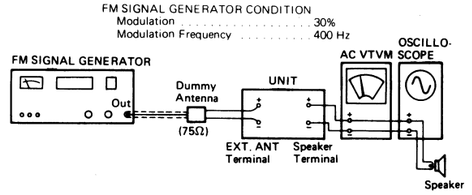
■ MEASUREMENTS AND ADJUSTMENTS

● Radio

FM-RF ADJUSTMENT

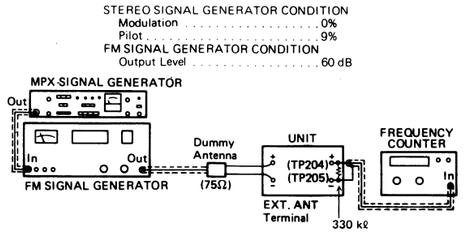
1. Test equipment connection is shown in figure.
2. Place unit into FM position.
3. Place the radio dial and signal generator setting to **87.25 MHz. (Set the dial pointer to the left end of the scale or lower frequency edge.)**
4. Adjust **L205** and **L204** for maximum output.
5. Place the radio dial and signal generator setting to **108.40 MHz. (Set the dial pointer to the right end of the scale or upper frequency edge.)**
6. Adjust **CT202** and **CT201** for maximum output.
7. Repeat steps 3. ~ 6.

Note: As three output reading will be present, adjustments must be made at center frequency.



FM STEREO ADJUSTMENT (FREE RUN)

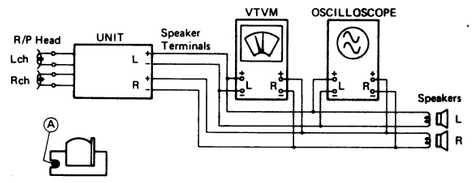
1. Test equipment connection is shown in figure.
2. Place unit into FM AUTO position.
   (By FM mode select button)
3. Place the radio dial and signal generator setting to **98 MHz.**
4. Adjust **VR201** for **38 kHz ± 100 Hz** on frequency counter reading.
5. Tune a stereo broadcast and confirm the frequency stays at **38** kHz.



● Tape

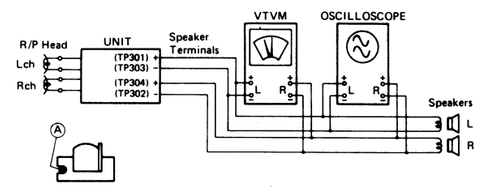
HEAD AZIMUTH ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Playback test tape QZZCAC. (10kHz, −20dB)
3. Adjust screw Ⓐ for maximum indication for equal output on both channels.
4. After adjustment, lock the head adjust screw Ⓐ with lacquer

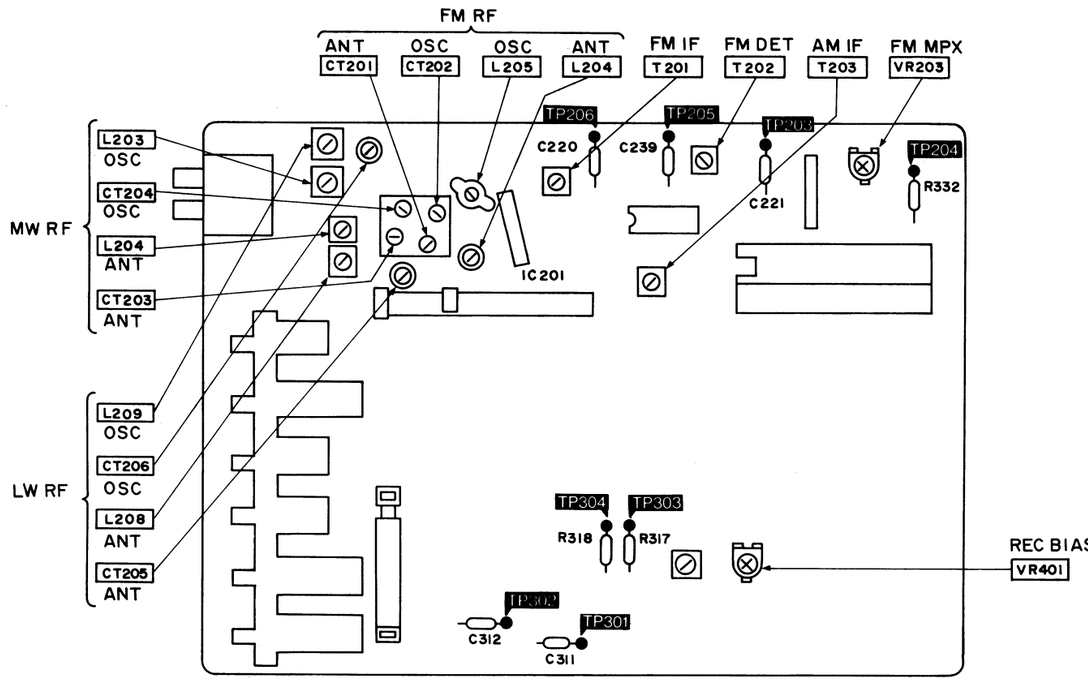


RECORDING BIAS ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Place unit into TAPE position.
3. Place cassette deck into recording mode.
4. Adjust **VR401** for **4.1 mV ± 0.3 mV** indication on VTVM.

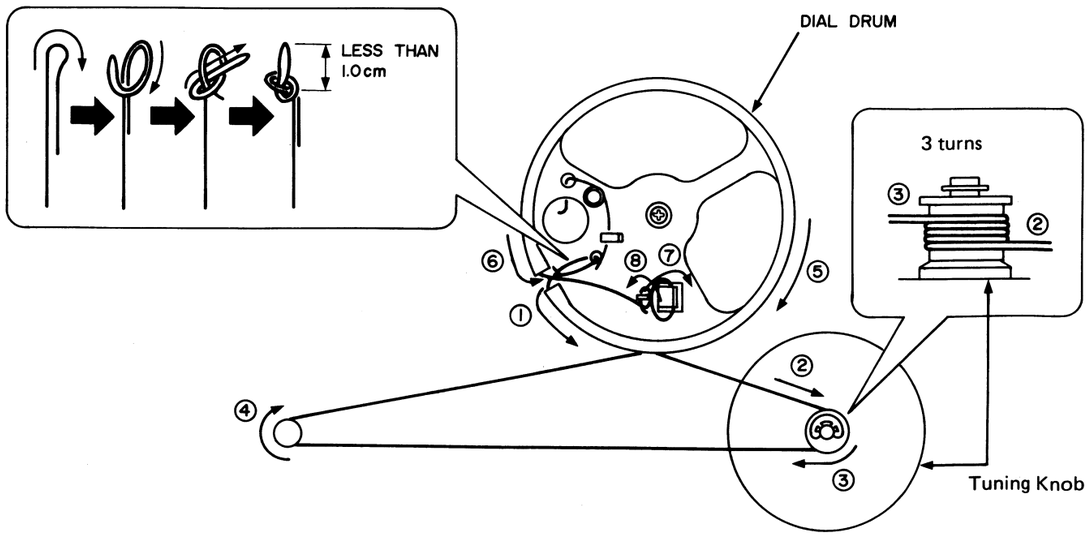


■ ADJUSTMENT POINTS



■ DIAL CORD STRINGING GUIDE

Note:
Dial Drum ·····Turn Fully Counterclockwise
Dial Cord Loop Length ···**100** cm



■ REPLACEMENT PARTS LIST

Notes:

1. Parts No. listed in this Parts List are Service Parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ marke have special characteristics important fo safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.

● RESISTOR PARTS

Numbering System of Resister

Type	Wattage	Tolerance	Value
Three Letters	One or Two Letters	Two or Three Letters	Three or Four Letters

Example: ERD 25 TJ 101

Resistor Type	Wattage	Tolerance
ERD: Carbon Film	1: 1W	F: ±1%
ERC: Solid	2: 2W	J: ±5%
ERX: Metal Film	12: 1/2W	K: ±10%
ERG: Metal Oxide Film	18: 1/8W	
ERO: High Stability Metal Film	25: 1/4W	
ERF: Flaneproof Wire-Wound Bath-Tube	50: 1/2W	
ERQ: Fuse Type Metal Film	2F: 1/4W	
RRD: Chip	S1: 1/2W	
	S2: 1/4W	

Ref. No.		Part No.	Value (Ω)	Ref. No.		Part No.	Value (Ω)
R202	S	ERD25TJ104	100K	R309	S	ERD25FJ330	33
R203	S	ERD25FJ331	330	R310	S	ERD25FJ330	33
R204	S	ERD25FJ222	2.2K	R311	S	ERD25FJ561	560
R205	S	ERD25TJ473	47K	R312	S	ERD25FJ561	560
R206	S	ERD25FJ470	47	R313	S	ERD25TJ474	470K
R207	S	ERD25FJ102	1K	R314	S	ERD25TJ474	470K
R208	S	ERD25FJ221	220	R315	S	ERD25TJ183	18K
R209	S	ERD25TJ224	220K	R316	S	ERD25TJ183	18K
R210	S	ERD25FJ152	1.5K	R317	S	ERD25FJ100	10
R211	S	ERD25FJ331	330	R318	S	ERD25FJ100	10
R212	S	ERD25FJ272	2.7K	R319	S	ERD25FJ561	560
R213	S	ERD25FJ562	5.6K	R320	S	ERD25FJ561	560
R214	S	ERD25FJ222	2.2K	R321	S	ERD25FJ472	4.7K
R215	S	ERD25TJ474	470K	R322	S	ERD25FJ472	4.7K
R217	S	ERD25FJ103	10K	R323	S	ERD25TJ104	100K
R218	S	ERD25TJ224	220K	R401	S	ERD25FJ470	47
R219	S	ERD25FJ332	3.3K	R403	S	ERD25FJ100	10
R220	S	ERD25FJ332	3.3K	R404	S	ERD25FJ120	12
R221	S	ERD25TJ823	82K	R406	S	ERD25FJ472	4.7K
R222	S	ERD25TJ823	82K	R407	S	ERD25FJ101	100
R223	S	ERD25FJ472	4.7K	R408	S	ERD25FJ4R7	4.7
R224	S	ERD25FJ472	4.7K	R409	S	ERD25FJ332	3.3K
R225	S	ERD25FJ561	560	R410	S	ERD25FJ472	4.7K
R226	S	ERD25FJ471	470	R411	S	ERD25TJ183	18K
R227	S	ERD25TJ473	47K	R412	S	ERD25FJ222	2.2K
R228	S	ERD25FJ271	270	R501	S	ERD25FJ102	1K
R229	S	ERD25FJ222	2.2K	R502	S	ERD25FJ102	1K
R230	S	ERD25FJ222	2.2K	R503	S	ERD25TJ104	100K
R231	S	ERD25FJ682	6.8K	R504	S	ERD25TJ104	100K
R232	S	ERD25FJ560	56	R505	S	ERD25TJ153	15K
R233	S	ERD25FJ270	27	R506	S	ERD25TJ153	15K
R234	S	ERD25FJ102	1K	R507	S	ERD25TJ104	100K
R301	S	ERD25TJ274	270K	R508	S	ERD25TJ104	100K
R302	S	ERD25TJ274	270K	R509	S	ERD25FJ561	560
R303	S	ERD25FJ101	100	R510	S	ERD25FJ561	560
R304	S	ERD25FJ101	100	R511	S	ERD25TJ273	27K
R305	S	ERD25TJ155	1.5M	R512	S	ERD25TJ273	27K
R306	S	ERD25TJ155	1.5M	R515	S	ERD25TJ684	680K
R307	S	ERD25TJ153	15K	R516	S	ERD25TJ684	680K
R308	S	ERD25TJ153	15K	R517	S	ERD25FJ272	2.7K

Ref. No.		Part No.	Value (Ω)	Ref. No.	Part No.	Value (Ω)
R518	S	ERD25FJ272	2.7K			
R519	S	ERD25FJ151	150			
R520	S	ERD25FJ472	4.7K			
R521	S	ERD25FJ472	4.7K			
R522	S	ERD25FJ102	1K			
R523	S	ERD25FJ103	10K			
R525	S	ERD25FJ102	1K			
R526	S	ERD25FJ102	1K			
R527	S	ERD25FJ152	1.5K			
R528	S	ERD25FJ102	1K			
R529	S	ERD25TJ155	1.5M			
R530	S	ERD25FJ330	33			
R531	S	ERD25FJ472	4.7K			
R532	S	ERD25FJ222	2.2K			
R601	S	ERD25TJ473	47K			
R602	S	ERD25TJ473	47K			
R603	S	ERD25TJ153	15K			
R604	S	ERD25TJ153	15K			
R605	S	ERD25TJ153	15K			
R606	S	ERD25TJ153	15K			
R607	S	ERD25FJ152	1.5K			
R608	S	ERD25FJ152	1.5K			
R609	S	ERD25FJ331	330			
R610	S	ERD25FJ331	330			
R702	S	ERD25FJ681	680			
R703	S	ERD25FJ221	220			
R704	S	ERD25FJ331	330			
R705	S	ERD25FJ681	680			
R901	S	ERD25FJ152	1.5K			
R902	S	ERD25FJ472	4.7K			
R903	S	ERD25FJ561	560			
R904	S	ERD25FJ561	560			

■ REPLACEMENT PARTS LIST

● CAPACITOR PARTS

Numbering System of Capacitor

Type	Voltage	Value	Tolerance
Four Letters	One or Two Letters	Two or Five Letters	One or Two Letters

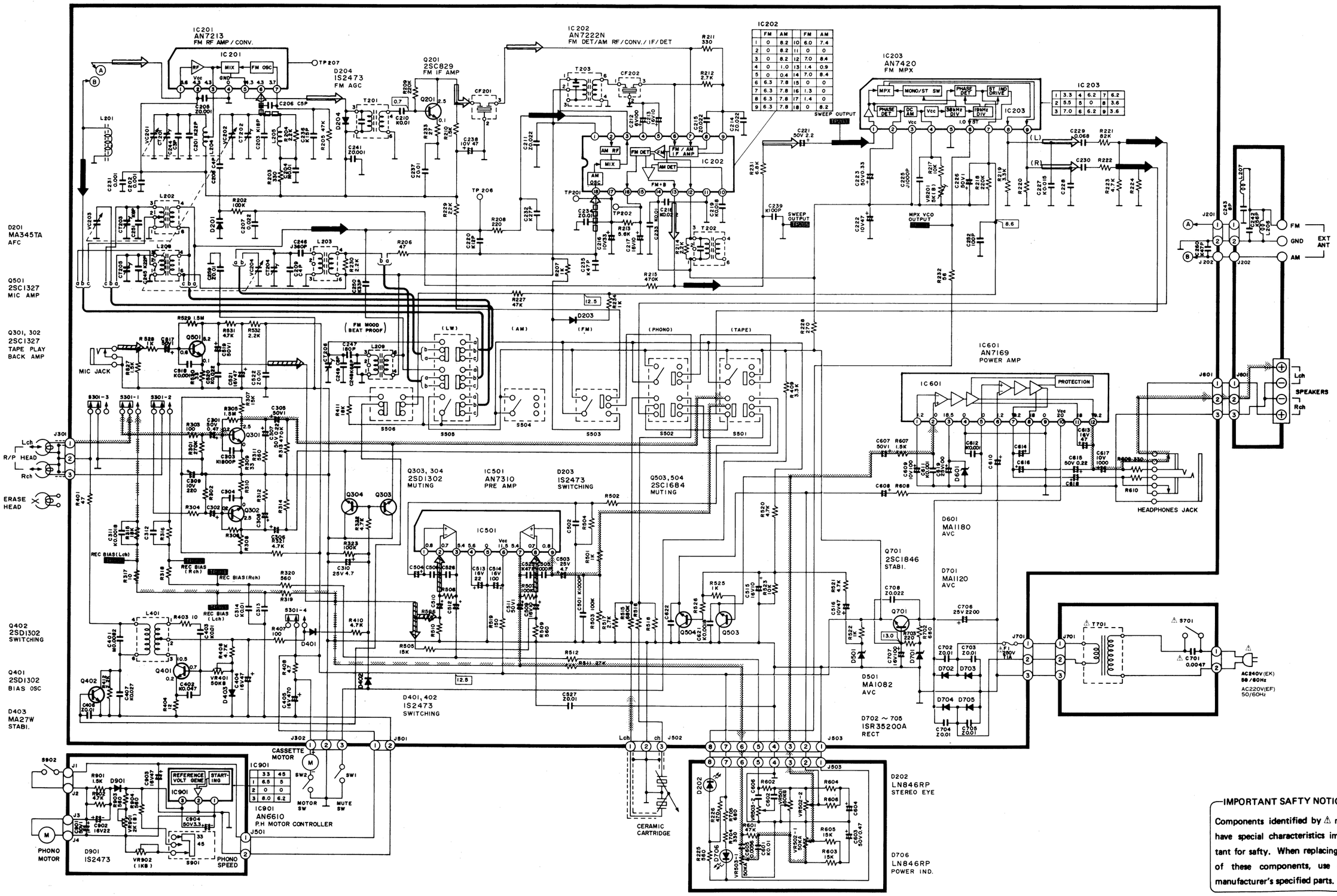
Example: ECKD 1H 333 MD

Capacitor Type	Voltage	Tolerance
ECCD: Temperature Compensating Ceramic	KC: 400V	C: ±0.25pF
ECKD: High dielectric Constant Ceramic	OJ: 6.3V	D: ±0.5pF
ECQM: Polyester	1A: 10V	F: ±1pF
ECQP: Polypropylene Film	1C: 16V	J: ±5%
ECQS: Polystylene Film	1E: 25V	K: ±10%
ECFD: Semiconductor Ceramic	1V: 35V	M: ±20%
ECEA: Electrolytic	1H: 50V	P: +100, −0%
ECEB: Electrolytic	1J: 63V	Z: +80, −20%
ECET: Electrolytic	2A: 100V	
ECSF: Tantalum	25: 25V	
ECUX: Chip	50: 50V	
ECBS: Ceramic		
ECBT: Ceramic		

Ref. No.		Part No.	Value (μF)	Ref. No.		Part No.	Value (μF)
C201	S	ECCD1H220K	22PF	C250	S	ECCD1H330K	33PF
C202	S	ECKD1H102ZF	0.001	C251	S	ECCD1H060CC	6PF
C203	S	ECCD1H180KC	18PF	C252	S	ECCD1H101K	100PF
C204	S	ECKD1H103MD	0.01	C259	S	ECKD1H103ZF	0.01
C205	S	ECKD1H102ZF	0.001	C260	S	ECCD1H470K	47PF
C206	S	ECCD1H050KC	5PF	C301	S	ECEA50ZR47	0.47
C207	S	ECKD1H223ZF	0.022	C302	S	ECEA50ZR47	0.47
C208	S	ECCD1H040CC	4PF	C303		ECFD1E182KD	0.0018
C209	S	ECCD1H040CC	4PF	C304		ECFD1E182KD	0.0018
C210	S	ECKD1H103ZF	0.01	C305		ECEA1HU010	1
C211	S	ECKD1H223ZF	0.022	C306		ECEA1HU010	1
C212		ECEA0JU101	100	C307		ECEA1HUR22	0.22
C213		ECEA1CU100	10	C308		ECEA1HUR22	0.22
C214	S	ECKD1H223ZF	0.022	C309		ECEA1AU221	220
C215	S	ECKD1H223ZF	0.022	C310		ECEA1EU4R7	4.7
C216		ECEA1AU330	33	C311	S	ECKD1H182KB	0.0018
C217		ECEA1CU100	10	C312	S	ECKD1H182KB	0.0018
C218	S	ECKD1H223ZF	0.022	C313		ECFD1E103KD	0.01
C219		ECFD1E183KD	0.018	C314		ECFD1E103KD	0.01
C220	S	ECCD1H120K	12PF	C401	S	ECQM1H822JZ	0.0082
C221		ECEA1HU2R2	2.2	C402		ECFD1E473KD	0.047
C222		ECEA1AU470	47	C403		ECFD1E103KD	0.01
C223		ECEA1HUR33	0.33	C404		ECEA1CU470	47
C225		ECQP2A102JZ	0.001	C405		ECEA1CU471	470
C226		ECEA1HU010	1	C406	S	ECKD1H103ZF	0.01
C227		ECFD1E153KD	0.015	C407		ECFD1E273KD	0.027
C228		ECFD1E153KD	0.015	C501	S	ECKD1H102KB	0.001
C229		ECFD1E683KD	0.068	C502	S	ECKD1H102KB	0.001
C230		ECFD1E683KD	0.068	C503		ECEA1EU4R7	4.7
C231	S	ECKD1H102ZF	0.001	C504		ECEA1EU4R7	4.7
C232	S	ECCD1H270K	27PF	C505	S	ECKD1H102KB	0.001
C233	S	ECKD1H103ZF	0.01	C506	S	ECKD1H102KB	0.001
C234	S	ECKD1H103ZF	0.01	C509		ECEA1CU100	10
C235	S	ECCD1H470K	47PF	C510		ECEA1CU100	10
C236	S	ECCD1H150KC	15PF	C511		ECEA1HU010	1
C237	S	ECKD1H103ZF	0.01	C512		ECEA1HU010	1
C238		ECEA1AU470	47	C513		ECEA1CU220	22
C239	S	ECCD1H101K	100PF	C514		ECEA1CU101	100
C241	S	ECKD1H102ZF	0.001	C515		ECEA1CU100	10
C242	S	ECCD1H560K	56PF	C516		ECEA1AU470	47
C243	S	ECCD1H080CC	8PF	C517		ECEA1HU010	1
C244	S	ECCD1H030CC	3PF	C518	S	ECKD1H102KB	0.001
C245	S	ECCD1H220K	22PF	C519		ECEA1HU010	1
C246		ECQP2A361JZ	360PF	C520		ECFD1E223KD	0.022
C247		ECQP2A181JZ	180PF	C521		ECEA1CU470	47
C248	S	ECCD1H680K	68PF	C522	S	ECKD1H103ZF	0.01
C249	S	ECCD1H080CC	8PF	C525	S	ECCD1H470K	47PF

Ref. No.		Part No.	Value (μF)	Ref. No.	Part No.	Value (μF)
C526	S	ECCD1H470K	47PF			
C527	S	ECKD1H103ZF	0.01			
C601		ECFD1E103KD	0.01			
C602		ECFD1E103KD	0.01			
C603		ECEA1HUR47	0.47			
C604		ECEA1HUR47	0.47			
C605		ECFD1E562KD	0.0056			
C606		ECFD1E562KD	0.0056			
C607		ECEA1HU010	1			
C608		ECEA1HU010	1			
C609		ECEA1AU101	100			
C610		ECEA1AU101	100			
C611	S	ECKD1H102KB	0.001			
C612	S	ECKD1H102KB	0.001			
C613		ECEA1CU470	47			
C614		ECEA1CU470	47			
C615		ECEA1HUR22	0.22			
C616		ECEA1HUR22	0.22			
C617		ECEA1AU102	1000			
C618		ECEA1AU102	1000			
C619		ECEA1EU101	100			
C621		ECFD1E182KD	0.0018			
C622		ECFD1E182KD	0.0018			
C701	⚠	ECKDKC472MF2	0.0047			
C702	S	ECKD1H103ZF	0.01			
C703	S	ECKD1H103ZF	0.01			
C704	S	ECKD1H103ZF	0.01			
C705	S	ECKD1H103ZF	0.01			
C706		ECEA1EU222	2200			
C707		ECEA1CU101	100			
C708	S	ECKD1H223ZF	0.022			
C901		ECEA1HU010	1			
C902		ECEA1CU220	22			
C903		ECEA1CU470	47			
C904		ECEA1HU3R3	3.3			

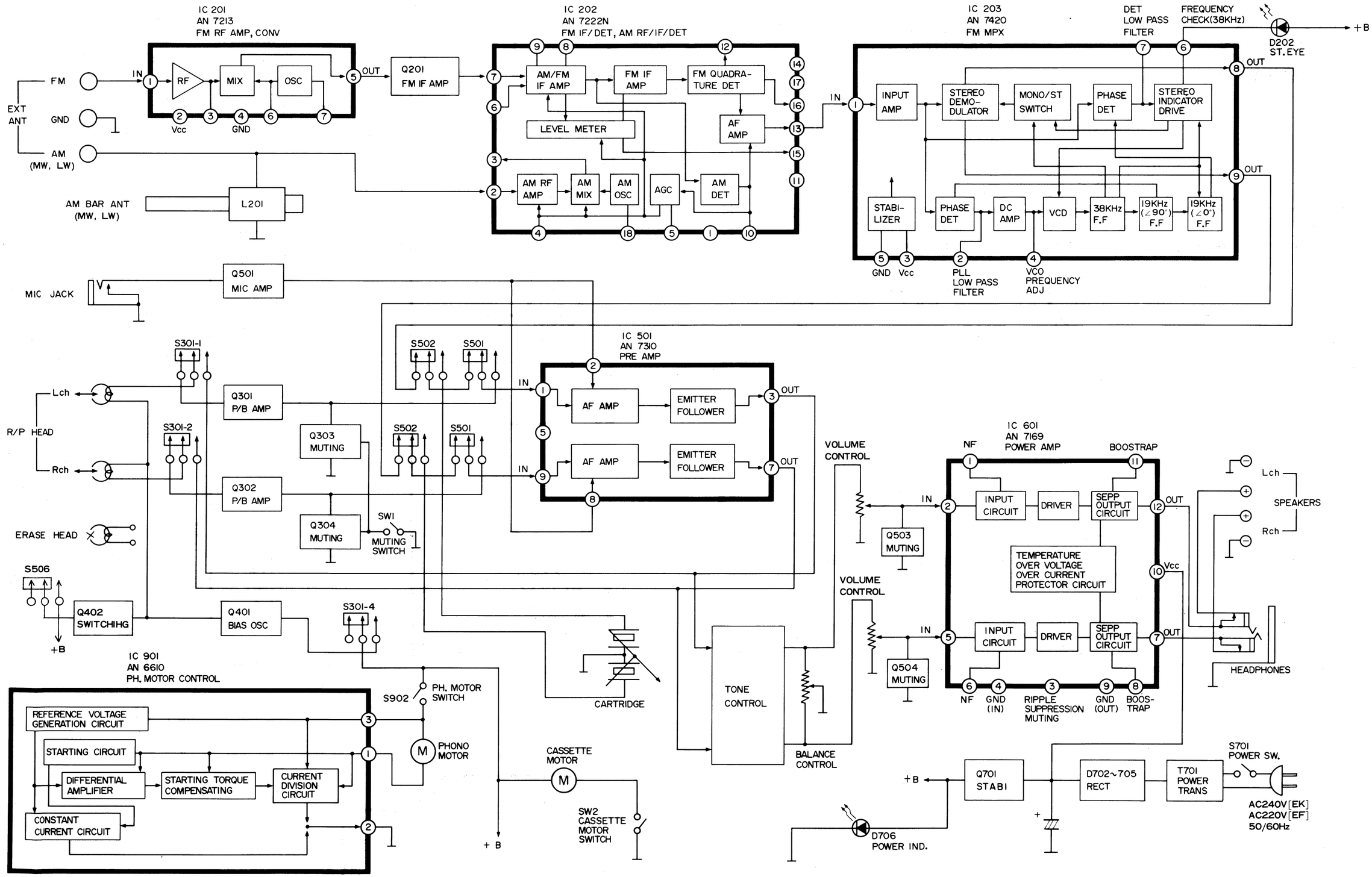
■ SCHEMATIC DIAGRAM



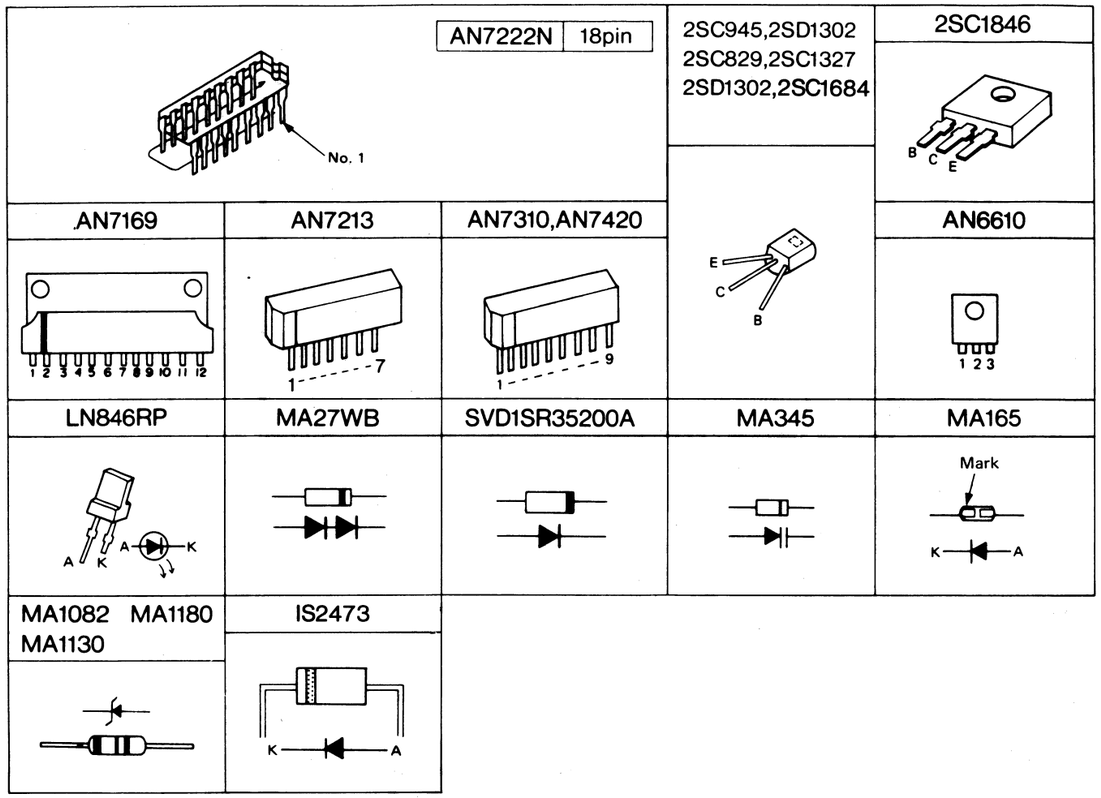
IMPORTANT SAFTY NOTICE

Components identified by ⚠ mark have special characteristics important for safty. When replacing any of these components, use only manufacturer's specified parts.

■ BLOCK DIAGRAM



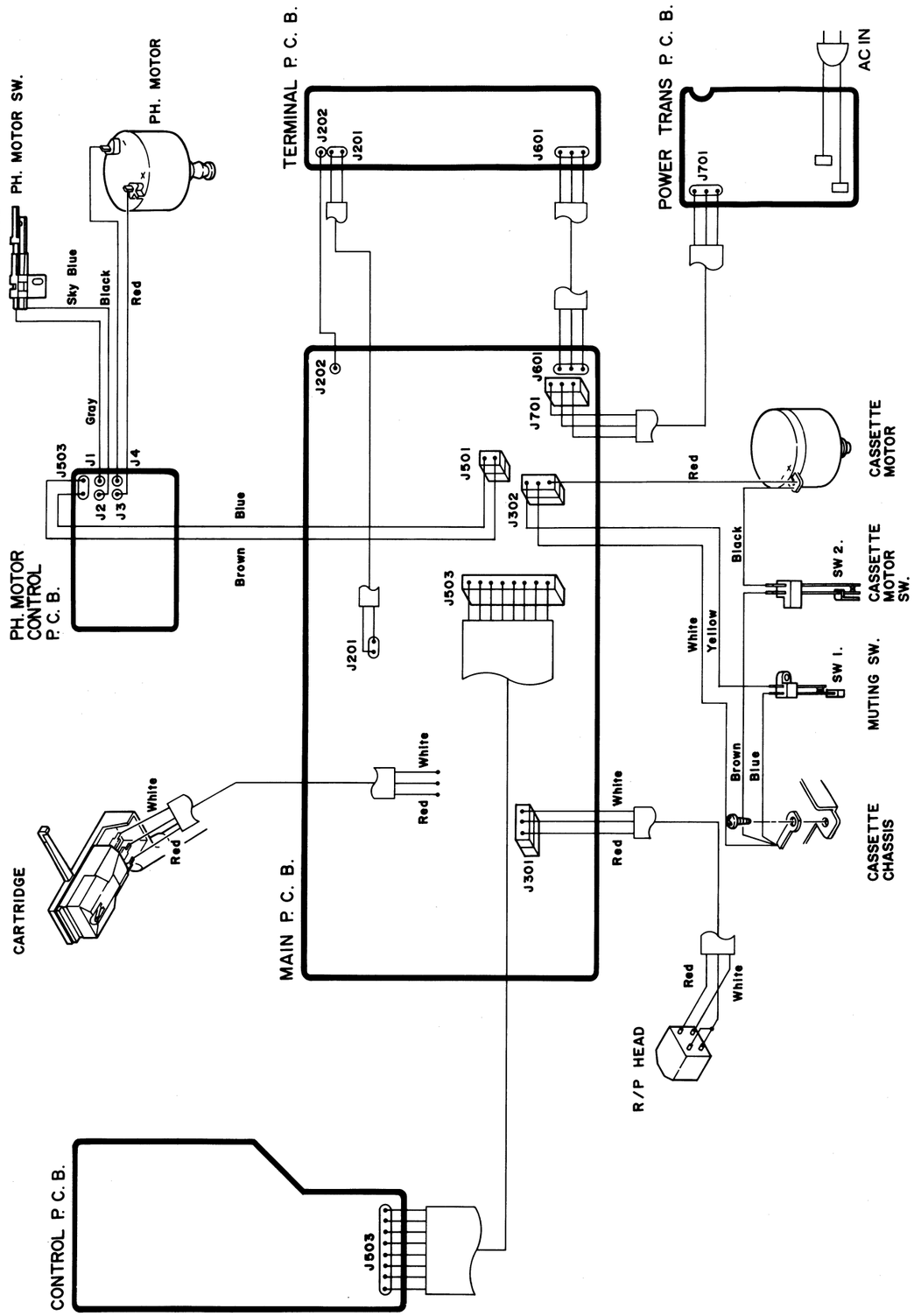
■ TERMINAL GUIDE



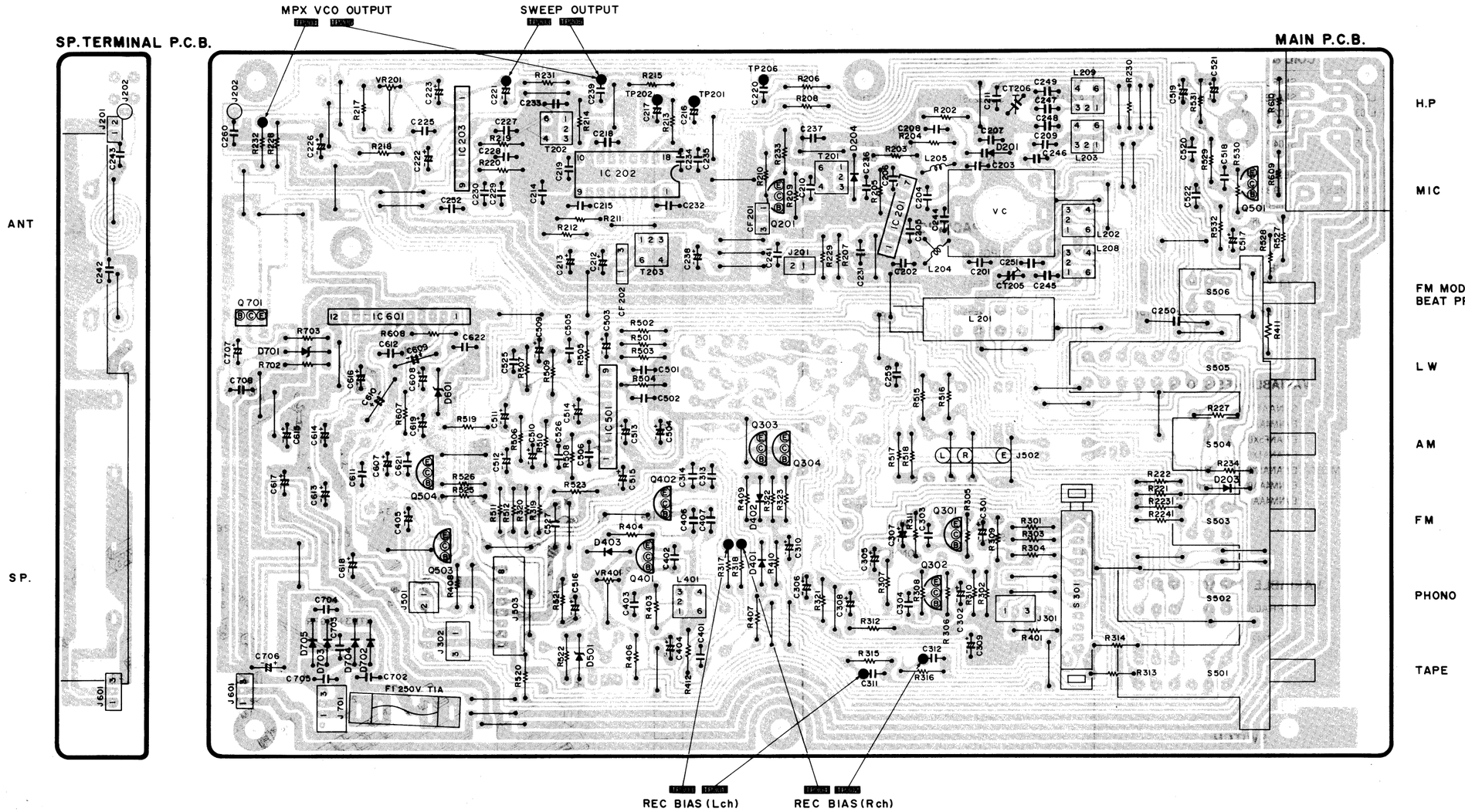
Notes:

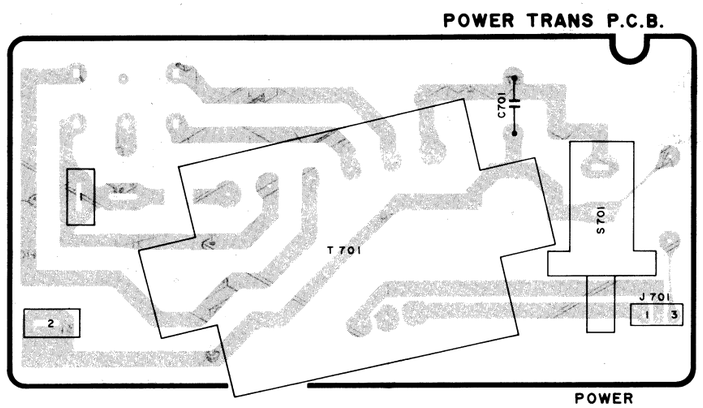
1. S701 . . . . . .Power switch in "OFF" position.
   S501 ~ 506 . . . . . .Input selector switch in "FM" position.
   (S501 : TAPE, S502 : PHONO, S503 : FM, S504 : MW, S505 : LW, S506 : FM mode/beat)
   S301 . . . . . .Rec. play selector switch in "PLAY" position.
   SW1. . . . . .Muting switch in "OFF" position.
   SW2. . . . . .Motor switch in "OFF" position.
   S901 . . . . . .Phono speed selector switch in "33rpm" position.
   S902 . . . . . .Phono motor switch in "OFF" position.
2. DC voltages are to be measured with DC VTVM under no signal condition in FM or AM position.
3. Positive voltage (+B) lines — AF, P/B and PH signal — Mic signal
   FM signal — FM OSC — Rec. signal
   AM signal — AM OSC

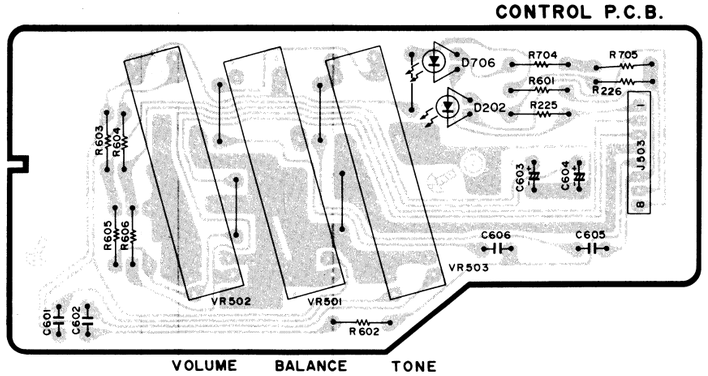
■ WIRING CONNECTION DIAGRAM

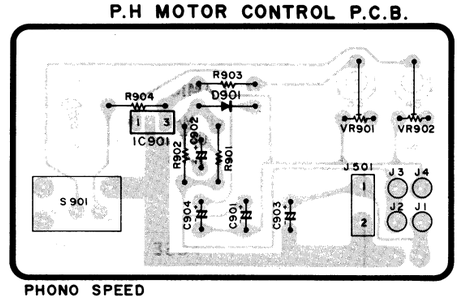


■ CIRCUIT BOARD DIAGRAM









■ REPLACEMENT PARTS LIST

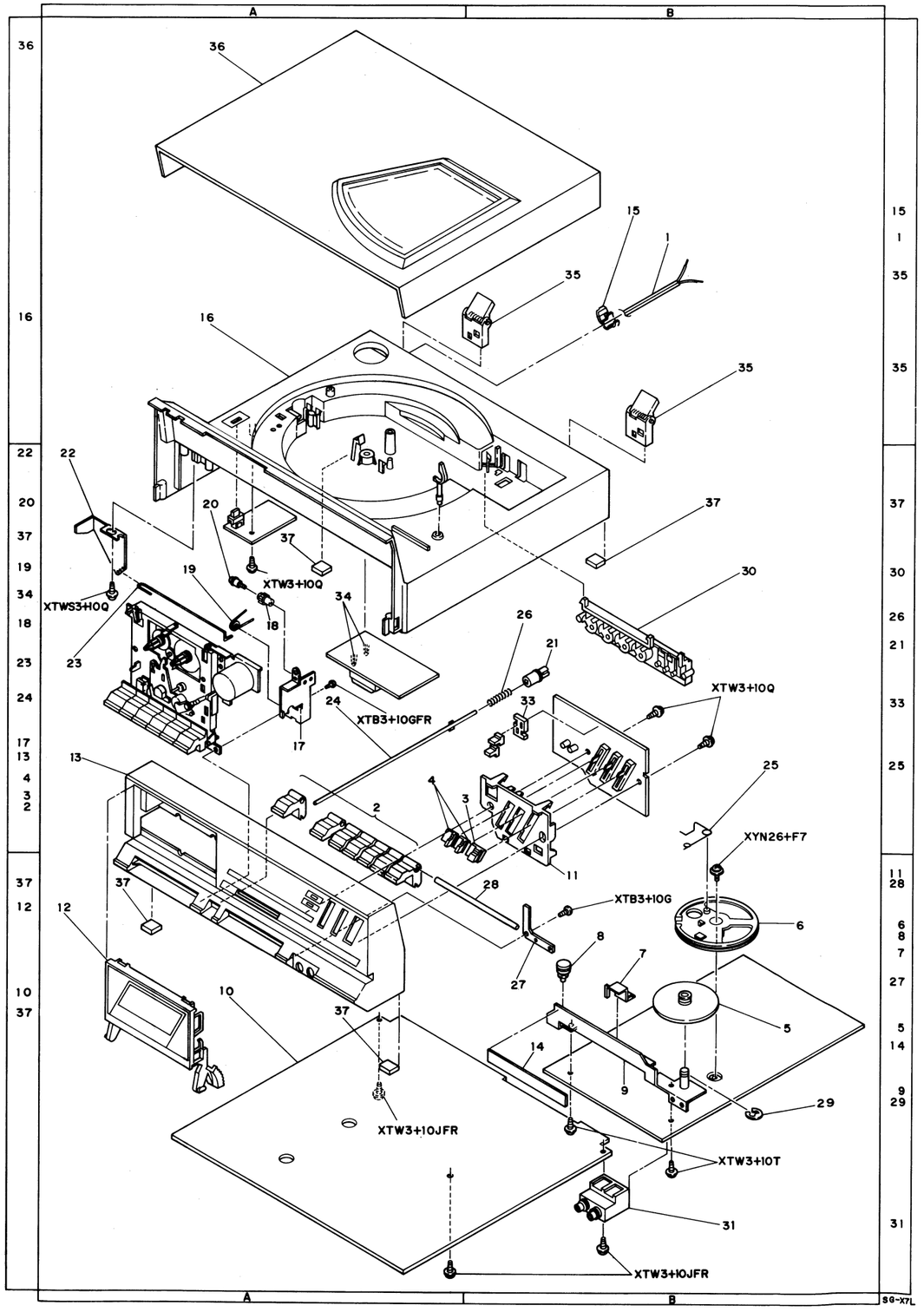
●ELECTRIC PARTS (Note : [MESA]. . . . .Made in Singapore)

Ref. No.	Part No.	Description
TRANSISTORS		
Q201	S 2SC829-C	TRANSISTOR
Q301	2SC1328-T	TRANSISTOR
Q302	2SC1328-T	TRANSISTOR
Q303	2SD1302-R	TRANSISTOR
Q304	2SD1302-R	TRANSISTOR
Q401	2SD1302-R	TRANSISTOR
Q402	2SD1302-R	TRANSISTOR
Q501	2SC1328-T	TRANSISTOR
Q503	2SC1685-QNC	TRANSISTOR
Q504	2SC1685-QNC	TRANSISTOR
Q701	2SC1846-R	TRANSISTOR
INTEGRATED CIRCUIT		
IC201	AN7213	I.C
IC202	AN7222N	I.C
IC203	AN7420	I.C
IC501	AN7310	I.C
IC601	AN7169	I.C
IC901	AN6610	I.C
DIODES		
D201	MA345	DIODE
D202	LN846RP	LED
D203	1S2473	DIODE
D204	1S2473	DIODE
D401	1S2473	DIODE
D402	1S2473	DIODE
D403	MA27W	DIODE
D501	SVDRD8.2EB	DIODE
D601	MA1180M	DIODE
D701	MA1120-M	DIODE
D702	SVD1SR35200A	DIODE
D703	SVD1SR35200A	DIODE
D704	SVD1SR35200A	DIODE
D705	SVD1SR35200A	DIODE
D706	LN846RP	LED
D901	1S2473	DIODE

Ref. No.	Part No.	Description
COIL & TRANSFORMERS		
L201 (MESA)	SLF6C1-0	FERRITE ANT
L202	SLA2B9-M	AM ANT COIL
L203	SL02B15-M	AM OJC COIL
L204	SLD4N27-0	FM ANT
L205	SL04P24-Z	FM OSC
L208	SLA1B6-K	LW ANTENNA
L209	SL01B7-M	LW OSC
L401 (MESA)	SL09B3-M	BIAS OSC
T201	SLI4B108-M	FM IFT
T202	SLI4B108-M	FM IFT
T203	SLI2B105-M	AM IFT [EF]
T203	SLI2B111-M	AM IFT [EK]
T701 ⚠ (MESA)	SLT5K217-W	POWER SOURCE [EF]
T701 ⚠ (MESA)	SLT5K207-W	POWER SOURCE [EK]
VARIABLE RESISTORS		
VR201	SVNAA53B2-Q	FM STEREO
VR401	EVNM4AA00B54	REC BIAS
VR501	EWANF5X05G15	BALANCE
VR502	EWANA1X05A54	VOLUME
VR503 (MESA)	EWANA5X05A54	TONE
VR901	EVNM4AA00B23	PHONO SPEED
VR902	EVNM4AA00B13	PHONO SPEED
VARIABLE CAPACITORS		
CT205,206	ECRHA020D11	LW ANTENNA,LW OSC
VC201~204 CT201~204	SVCCB42E998	VARICON
SWITCH		
S301	SSS144	REC/PLAY
S501	SSH645	INPUT SELECTOR
S701 ⚠	SSH1071	POWER
S901	SSS138	SPEED SELECTOR
CERAMIC FILTER		
CF201	SVFE107MA5	10.7MHZ
CF202	SVFSFU450B3	450KHZ [EF]
CF202	SVFSFU468B	468KHZ [EK]
FUSE		
F1 ⚠	XBA2C10TR0	250V,T1A [EF]
F1 ⚠	XBA2C10TB0	250V,T1A [EK]

Ref. No.	Part No.	Description
ACCESSORIES		
A1	SSA269	FEEDER ANT
A2 (MESA)	SQF12351	INSTRUCTION BOOK [EK]
A2 (MESA)	SQF12537	INSTRUCTION BOOK [EF]
A3	SJY5018-1	EP ADAPTOR
PACKING		
P1 (MESA)	SPG5296	CARTON BOX [EK]
P1 (MESA)	SPG5361	CARTON BOX [EF]
P2 (MESA)	SPS4573	PAD,LEFT SIDE
P3 (MESA)	SPS4574	PAD,RIGHT SIDE
P4	SPS4469	PAD
P7	SPH6232	SHEET
P8	SPP230	SET COVER
CONECTOR		
1	SJT3213	CONNECTOR,2P
2	SJT3319	CONNECTOR,3P
3	SJS5327	CONNECTOR,3P
4	SJS5807	CONNECTOR,8P

■ PARTS LOCATION OF CABINET AND CHASSIS



■ REPLACEMENT PARTS LIST (Note : [MESA]. . . . . Made in Singapore)

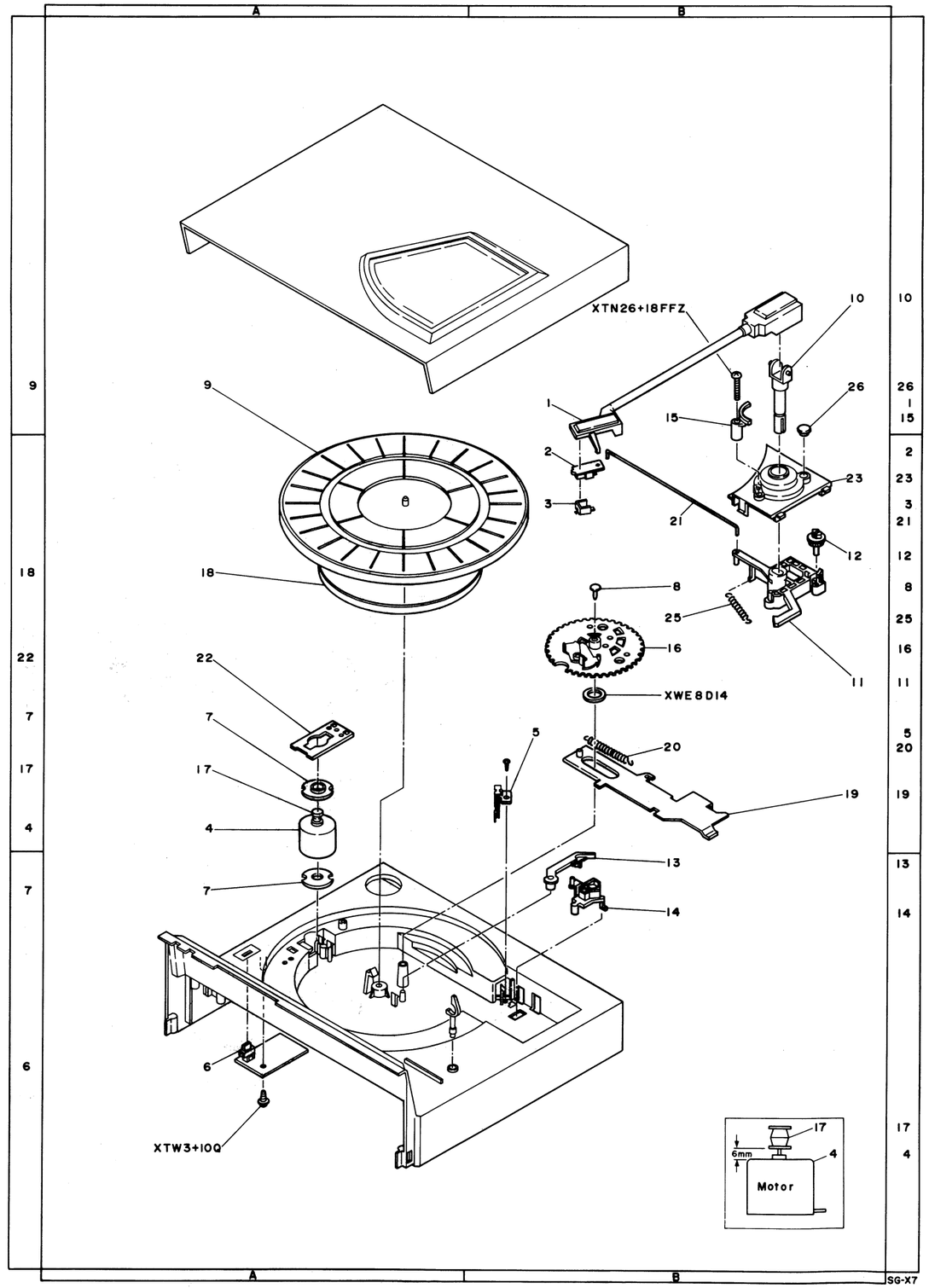
● CABINET AND CHASSIS PARTS

Ref. No.	Part No.	Description	Pcs/ Set
1 ⚠	QFC1205M	POWER CORD [EK]	
1 ⚠	SJA138-3	POWER CORD [EF]	
2	SBC717	BUTTON	
3	SBD114	KNOB (MESA)	
4	SBD115	KNOB (MESA)	
5	SBN1196	KNOB	
6	SDD62-2	DIAL DRUM (MESA)	
7	SDP1195	DIAL POINTER (MESA)	
8	SDR33-1	PULLEY	
9	SDTGX7-KM	TUNING SHAFT (MESA)	
10	SYU539	BOTTOM BOARD (MESA)	
11	SGX7741	SLIDE BASE (MESA)	
12	SGXGX7-KM	CASSETTE HOLDER (MESA)	
13	SGYGX7L-KE	PANEL ASS'Y (MESA)	
14	SHP66	GUIDE SHEET (MESA)	
15	SHR937	CORD CLAMP	
16	SKMGX7L-KK	CABINET [EK], (MESA)	
16	SKMGX7L-KF	CABINET [EF], (MESA)	
17	SMQ30022	DAMPER ANGLE (MESA)	
18	SMQ4096	DAMPER GEAR	
19	SMQ60014	SPRING (MESA)	
20	SNE270	SCREW	
21	SUB203	CONNECTION ROD	
22	SUB222	CONNECTION ROD (MESA)	
23	SUB223	CONNECTION ROD (MESA)	
24	SUB224	CONNECTION ROD (MESA)	
25	SUS787	SPRING (MESA)	
26	SUS788	SPRING (MESA)	
27	SUW2927	SHAFT FIXTURE (MESA)	
28	SUX37	BUTTON SHAFT (MESA)	
29	XUC4FT	STOP RING	
30	SJF8045	TERMINAL	
31	SJJ124	JACK, MIC/PHONE	
33	SHR9760	HOLDER (MESA)	
34	SJT777	PLUG	
35	SBH9383	HINGE	
36	SGKGX7-KM	DUST COVER (MESA)	
37	SHS3276	FELT (MESA)	

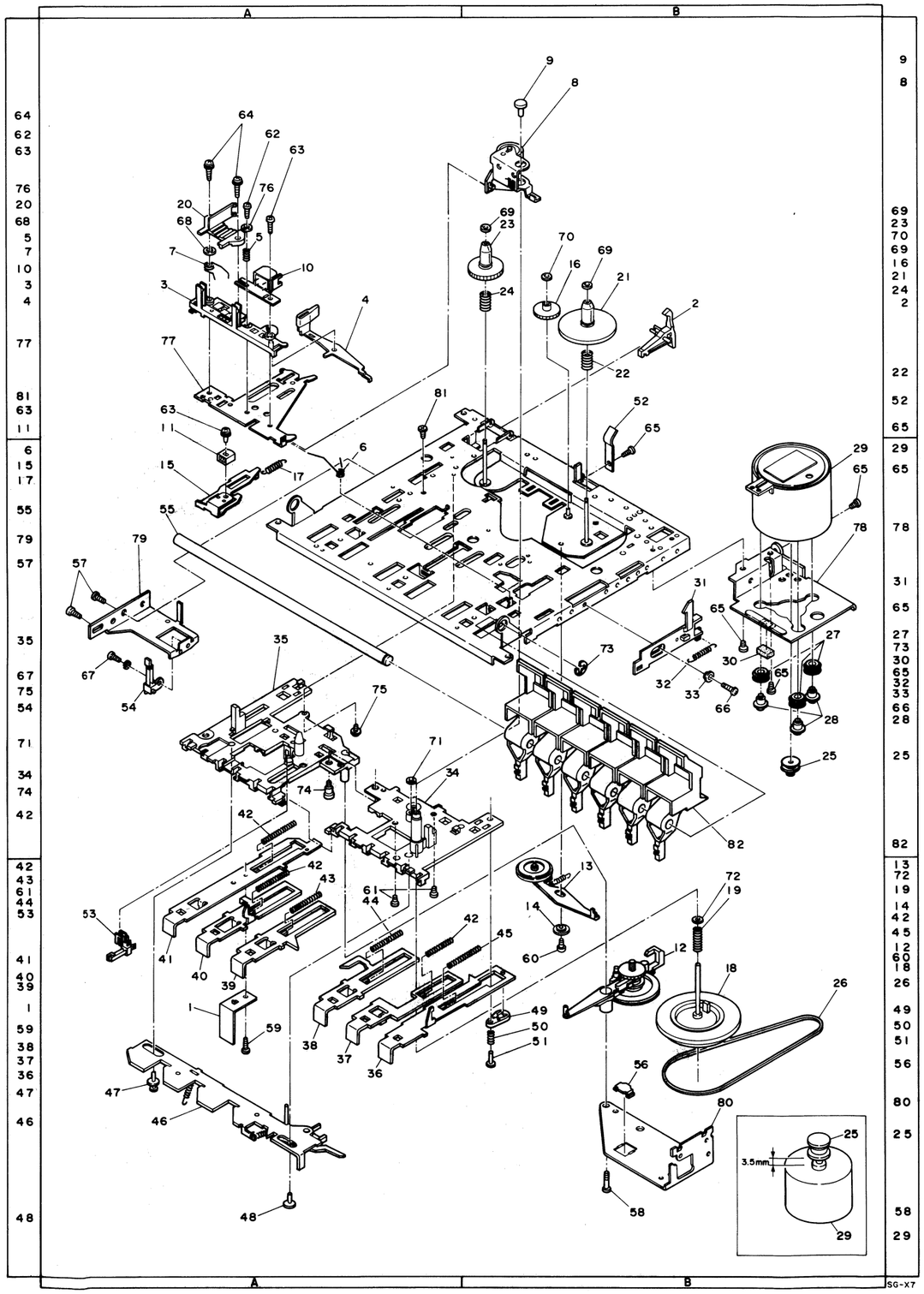
● RECORD PLAYER PARTS

Ref. No.	Part No.	Description	Pcs/ Set
1	EPA645STA	TONE ARM (MESA)	
2	EPC13STH	CARTRIDGE WITH STYLUS	
3	EPS41ST	STYLUS	
4	MMN6P2RE	PHONO MOTOR (MESA)	
5	SSP66	LEAF SWITCH	
6	SBN1132	SLIDE KNOB	
7	SHG9260	MOTOR RUBBER	
8	SHR417	PLASTIC RIVET (MESA)	
9	SJYGX7-KM	TURN TABLE ASS'Y (MESA)	
10	SJY5218	PU REST	
11	SJY5220	PU FIXING ARM (MESA)	
12	SJY5221	PU CAM (MESA)	
13	SJY5222	DRIVE LEVER (MESA)	
14	SJY5223	OPERATING PLATE, SWITCH	
15	SJY5224	LIFTER	
16	SJY486	GEAR ASS'Y	
17	SJY90445	CAPSTAN	
18	SJY90080-1	FLAT BELT	
19	SJYGX7-KM1	OPERATING PLATE ASS'Y (MESA)	
20	SJY90406	COIL SPRING	
21	SJY90455	SPOKE LEVER (MESA)	
22	SJY90456	MOTOR ANGLE (MESA)	
23	SKM7540	ARM BASE (MESA)	
25	SUS786	SPRING (MESA)	
26	SHG9246-1	RUBBER CAP	

■ PARTS LOCATION OF RECORD PLAYER



■ PARTS LOCATION OF CASSETTE TAPE DECK



■ REPLACEMENT PARTS LIST

● CASSETTE TAPE DECK PARTS (Note : [MESA]. . . . .Made in Singapore)

Ref. No.	Part No.	Description	Pcs/ Set	Ref. No.	Part No.	Description	Pcs/ Set
1	SMQ4332	REC PLATE SPRING		64	XSN2+8	SCREW 2X8	
2	SMQ4778	REC SAFETY LEVER		65	XSN26+4	SCREW 26X4	
3	SMQ5004	HEAD BASE		66	XSN26+5	SCREW 26X5	
4	SMQ5006	SENSING PIECE ASS'Y		67	XSN2+4	SCREW 2X4	
5	SMQ4596	COIL SPRING		68	RFN104ZA	WASHER	
6	RFS469ZA	TORSION SPRING		69	SMQ4928	POLY WASHER	
7	RFS402ZA	TORSION SPRING		70	SMQ4930	POLY WASHER	
8	SMQ5008	PINCH ROLLER ASS'Y		71	SMQ1402	NYLON WASHER	
9	SMQ4774	STOPPER		72	SMQ5020	WASHER	
10	SJH92	R/P HEAD		73	XUC32FT	E RING	
11	SJH82	ERASE HEAD		74	RFE128ZA	SCREW	
12	SMQ5018	COIL SPRING		75	SMQ5068	SCREW	
13	SMQ5010	RF CLUTCH ASS'Y		76	XWE2	WASHER	
14	SMQ5014	COLLAR		77	RFD164ZA	HEAD PANEL	
15	RFD156ZA	ERASE HEAD BASE PLATE		78	SMQT1448	MOTOR BRACKET	
16	SMQ4810	FF GEAR		79	SMQT1449	MS BRACKET	
17	RFS361ZA	COIL SPRING		80	SMQT1450	FLYWHEEL BRACKET	
18	SMQ5016	FLYWHEEL ASS'Y		81	RFE44ZA	SCREW	
19	SMQ5018	COIL SPRING		82	SBC716	CASSETTE BUTTON	
20	RFE72ZA	ERASE HEAD BASE					
21	SMQ5022	TAKE UP REEL ASS'Y					
22	SMQ5026	COIL SPRING					
23	SMQ5024	REEL ASS'Y, SUPPLY					
24	SMQ5028	COIL SPRING					
25	SMQ4726	PULLEY, MOTOR					
26	RFB38ZA	ANGULAR BELT					
27	SMQ1834	RUBBER CUSHION, MOTOR					
28	SMQ1908	MOTOR SCREW					
29	MMI6S2RJ	MOTOR (MESA)					
30	RFI28ZA	ANTI VIBRATION FELT					
31	RFY327ZA	EJECT SLIDE LEVER					
32	RFS429ZA	COIL SPRING					
33	SMQ5170	COLLAR,ELECT LEVER					
34	SMQ5454	BUTTON BASE,R					
35	SMQ5456	BUTTON BASE,L					
36	RFY260ZA	PAUSE BUTTON LEVER ASS'Y					
37	RFY261ZA	STOP BUTTON LEVER					
38	RFY262ZA	FF BUTTON LEVER					
39	RFY263ZA	REWIND BUTTON LEVER					
40	RFY388ZA	PLAY BUTTON LEVER					
41	RFY265ZA	RECORDING BUTTON LEVER					
42	SMQ5050	COIL SPRING					
43	SMQ5052	COIL SPRING					
44	SMQ5054	COIL SPRING					
45	SMQ5056	COIL SPRING					
46	SMQ5032	OPERATION PLATE					
47	SMQ4276	OPERATION PLATE SHAFT, REC					
48	SMQ5034	OPERATION PLATE SHAFT, STOP					
49	SMQ2444	CLICK LEVER, PAUSE					
50	SMQ5048	COIL SPRING					
51	SMQ4862	STOPPER, PAUSE CLICK LEVER					
52	SMQT1447	PLATE SPRING					
53	SMQ5060	LEAF SWITCH					
54	SMQ5062	LEAF SWITCH					
55	SMQ50004	PUSH BUTTON LEVER SHAFT (MESA)					
56	SMQ2538	PAD, FLYWHEEL					
57	XSN26+3	SCREW 26X3					
58	SMQ5070	SCREW					
59	S XSN2+3	SCREW 2X3					
60	XSN2+4	SCREW 2X4					
61	XSN2+5	SCREW 2X5					
62	XSN2+7	SCREW 2X7					
63	XSN2+7	SCREW 2X7					

Printed in Japan
850607100 ⓙ TM/TN

CARACTERISTIQUES TECHNIQUES

■ SECTION AMPLIFICATEUR

Puissance de sortie	
PSM	10 W (2x5 W, DHT 10%, 4Ω)
Impédance de charge	4Ω~16Ω
Sensibilité et impédance d'entrée	
MICRO (MIC)	1,5 mV/1,5 kΩ
Commandes de tonalité	10 kHz, +6 dB ~ 12 dB
Physiologique	100 Hz, +6 dB
	(Volume sur la position −30 dB)

■ SECTION SYNTONISATEUR FM

Gamme de fréquence	87,5 ~ 108 MHz
Fréquence intermédiaire (IF)	10,7 MHz
Sensibilité (à 1 kHz, Signal/Bruit 26 dB, mod. 40 kHz)	
	3,8 μV (75Ω)
Rapport image	35 dB (98 MHz)
Signal/Bruilt MONO	65 dB (IHF)
Distorsion harmonique totale (à 1 kHz, 60 dB, mod. 40 kHz)	
MONO	0,3%
STEREO	0,5%
Séparation stéréophonique (entrée 60 dB, mod. 40 kHz)	
1 kHz	35 dB

■ SECTION SYNTONISATEUR AM (PO/GO)

Gamme de fréquence	
PO (MW)	527 ~ 1605 kHz
GO (LW)	150 ~ 350 kHz
Fréquence intermédiaire (IF)	450 kHz
Sensibilité (50 mW)	
PO (MW)	200 μV/m (1 MHz)
GO (LW)	500 μV/m (250 kHz)

■ SECTION TOURNE-DISQUE

Système	Tourne-disque automatique entraîné par courroie
Taille de plateau	28 cm
Vitesse de rotation	33-1/3 et 45 t/mn.
Moteur phono	Moteur CC à asservissement électronique
Cellule phonoélectrice	Céramique (EPC-13STH)
Pointe de lecture	Saphir (EPS-41ST)
Plage de force d'appui	5,5 g

■ SECTION MAGNÉTPHONE

Platine	Système cassette à arrêt automatique avec commande de pause
Pistes	2 voies, 4 pistes
Moteurs	Moteur CC à asservissement électronique
Système d'enregistrement	Polarisation C.A., 53 kHz
Effacement	Aimant
Vitesse de bande	4,75 cm/sec.
Réponse de fréquences	50 Hz ~ 12 kHz
Pleurage et scintillement	0,2% (WRMS)
RAPPORTS S/B	40 dB (A-WTD)

■ DIVERS

Consommation	30 W
Alimentation	CA 220 V, 50 Hz/60 Hz
Dimensions (LxHxPr)	380 x 129,5 x 408 mm
Poids	3,8 kg

MESURES ET REGLAGES

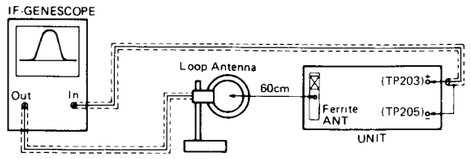
■ Radio

Positions des commandes
- Command de volume . . . . . Maximum
- Compensateur de fréquences . . . . . Centre
- Commande d'équilibrage . . . . . Centre
- La sortie du générateur de signaux ne doit pas être plus élevée que cela est nécessaire afin d'obtenir l'indication de la sortie.
- S'assurer que l'ensemble des haut-parleurs soit relié au récepteur lors de l'alignement (ou lors de l'utilisation des résistances de charges fictives correspondantes).

ALIGNEMENT AM-IF

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position MW.
3. Régler le cadran radio sur le point de non interférence.
4. Régler **T203** afin d'obtenir une sortie maximale et une courbe symétrique.

Condition du généscope IF:
Fréquence . . . . . 450 kHz

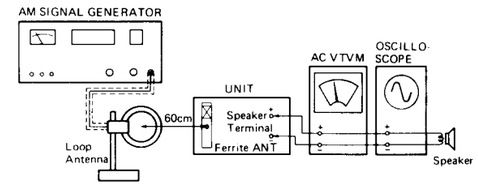


■ Radio

ALIGNEMENT PO-GF

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position MW.
3. Régler le cadran radio et le générateur de signaux sur **510 kHz.**
   (Régler l'aiguille du cadran sur la gauche de la graduation ou sur le bord de la fréquence inférieure.)
4. Régler **L203** pour obtenir une sortie maximale.
5. Régler le cadran radio et le générateur de signaux sur **600 kHz.**
6. Régler **L202** pour obtenir une sortie maximale.
7. Régler le cadran radio et le générateur de signaux sur **1670 kHz.**
   (Régler l'aiguille du cadran sur la droite de la graduation ou sur le bord de la fréquence supérieure.)
8. Régler **CT204** et **CT203** pour obtenir une sortie maximale.
9. Répéter la marche à suivre 3. ~ 8.

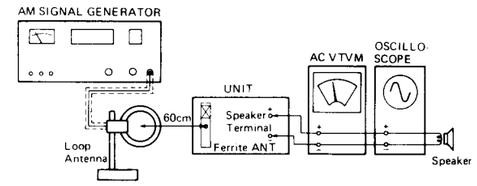
Condition du générateur:
Modulation 30%
Modulation Fréquence . . . . . 400 Hz



ALIGNEMENT GO-GF

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position LW.
3. Régler le cadran radio et le générateur de signaux sur **143 kHz.**
   (Régler l'aiguille du cadran sur la gauche de la graduation ou sur le bord de la fréquence inférieure.)
4. Régler **L209** pour obtenir une sortie maximale.
5. Régler le cadran radio et le générateur de signaux sur **145 kHz.**
6. Régler **L208** pour obtenir une sortie maximale.
7. Régler le cadran radio et le générateur de signaux sur **353 kHz.**
   (Régler l'aiguille du cadran sur la droite de la graduation ou sur le bord de la fréquence supérieure.)
8. Régler **CT206** et **CT205** pour obtenir une sortie maximale.
9. Répéter la marche à suivre 3. ~ 8.

Condition du générateur:
Modulation 30%
Modulation Fréquence . . . . . 400 Hz

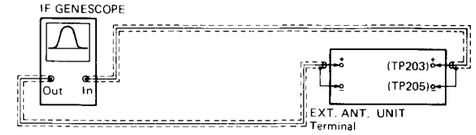


ALIGNEMENT FM-IF

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position FM.
3. Régler le cadran radio sur le point de non interférence.
4. Régler **T201** pour obtenir une amplitude maximale et une courbe symétrique. (Se reporter à la Fig. 1)
5. Régler **T202** pour obtenir une amplitude maximale et une bonne linéarité entre les repères ± 100 kHz environ. (Se reporter à la Fig. 2)

Remarque: Avant d'effectuer l'alignement, tourner **T202** entièrement dans le sens inverse des aiguilles d'une montre.

Condition du généscope IF de balayage:
Fréquence . . . . . 10.7 MHz



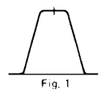


Fig. 1

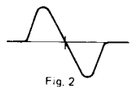


Fig. 2

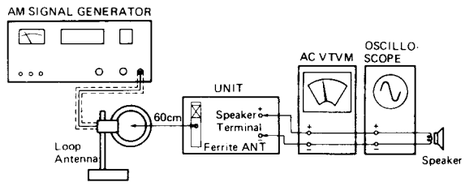
MESURES ET REGLAGES

■ **Radio**

ALIGNEMENT PO-GF

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position MW.
3. Régler le cadran radio et le générateur de signaux sur **510 kHz.**
   (Régler l'aiguille du cadran sur la gauche de la graduation ou sur le bord de la fréquence inférieure.)
4. Régler **L203** pour obtenir une sortie maximale.
5. Régler le cadran radio et le générateur de signaux sur **600 kHz.**
6. Régler **L202** pour obtenir une sortie maximale.
7. Régler le cadran radio et le générateur de signaux sur **1670 kHz.**
   (Régler l'aiguille du cadran sur la droite de la graduation ou sur le bord de la fréquence supérieure.)
8. Régler **CT204** et **CT203** pour obtenir une sortie maximale.
9. Répéter la marche à suivre 3. ~ 8.

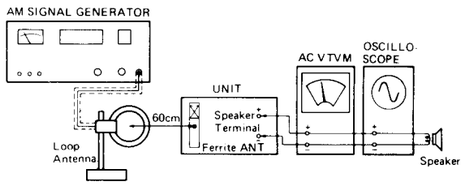
Condition du générateur:
Modulation 30%
Modulation Fréquence . . . . . 400 Hz



ALIGNEMENT GO-GF

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position LW.
3. Régler le cadran radio et le générateur de signaux sur **143 kHz.**
   (Régler l'aiguille du cadran sur la gauche de la graduation ou sur le bord de la fréquence inférieure.)
4. Régler **L209** pour obtenir une sortie maximale.
5. Régler le cadran radio et le générateur de signaux sur **145 kHz.**
6. Régler **L208** pour obtenir une sortie maximale.
7. Régler le cadran radio et le générateur de signaux sur **353 kHz.**
   (Régler l'aiguille du cadran sur la droite de la graduation ou sur le bord de la fréquence supérieure.)
8. Régler **CT206** et **CT205** pour obtenir une sortie maximale.
9. Répéter la marche à suivre 3. ~ 8.

Condition du générateur:
Modulation 30%
Modulation Fréquence . . . . . 400 Hz



ALIGNEMENT FM-IF

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position FM.
3. Régler le cadran radio sur le point de non interférence.
4. Régler **T201** pour obtenir une amplitude maximale et une courbe symétrique. (Se reporter à la Fig. 1)
5. Régler **T202** pour obtenir une amplitude maximale et une bonne linéarité entre les repères ± 100 kHz environ. (Se reporter à la Fig. 2)

Remarque: Avant d'effectuer l'alignement, tourner **T202** entièrement dans le sens inverse des aiguilles d'une montre.

Condition du généscope IF de balayage:
Fréquence . . . . . 10.7 MHz

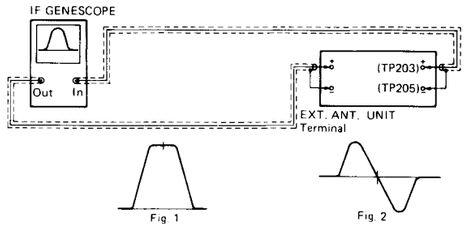


Fig. 1

Fig. 2

SG-X7L SG-X7L

MESURES ET REGLAGES

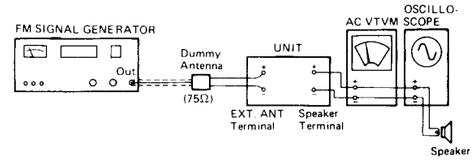
■ **Radio**

ALIGNEMENT FM-GF

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position FM.
3. Régler le cadran radio et le générateur de signaux sur **87.25 MHz.**
   (Régler l'aiguille du cadran sur la gauche de la graduation ou sur le bord de la fréquence inférieure.)
4. Régler **L205** et **L204** pour obtenir une sortie maximale.
5. Régler le cadran radio et le générateur de signaux sur **108.40 MHz.**
   (Régler l'aiguille du cadran sur la droite de la graduation ou sur le bord de la fréquence supérieure.)
6. Régler **CT202** et **CT201** et pour obtenir une sortie maximale.
7. Répéter la marche à suivre 3. ~ 6.

Remarque: Les réglages doivent être effectués sur la fréquence médiane étant donné que l'on a trois indications de sortie.

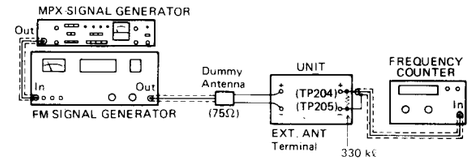
Condition du générateur:
Modulation 30%
Modulation Fréquence . . . . . 400 Hz



ALIGNEMENT STEREO FM (FONCTIONNEMENT LIBRE)

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position FM AUTO. (Avec le bouton-sélecteur de mode FM.)
3. Régler lecadran radio et le générateur de signaux sur **98 MHz.**
4. Régler **VR201** sur **38 kHz** ± **100 Hz** sur le compteur de fréquences.
5. Accorder une émission stéréo et s'assurer que la fréquence reste sur 38 kHz.

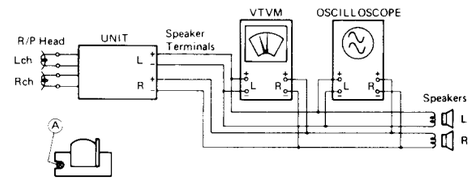
Condition du générateur:
Modulation 0%
Modulation Fréquence . . . . . 0 Hz
Taux de modulation du signal
Pilote 19 kHz 9%



■ **Bande**

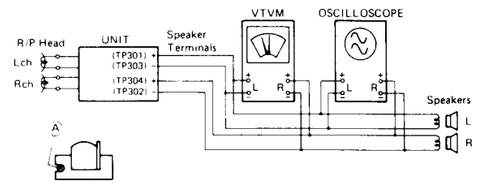
ALIGNEMENT D'AZIMUT DE LA TETE

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Bande de reproduction d'essai QZZCAC (10 kHz – 20 dB).
3. Régler la vis (A) afin d'obtenir une indication maximale d'égalisation de sortie des deux canaux.
4. Après l'alignement, bloquer la vis (A) de réglage de tête avec de la laque.



ALIGNEMENT DE POLARISATION D'ENREGISTREMENT

1. Le raccordement de l'équipement d'essai est indiqué à la figure.
2. Mettre l'appareil sur la position TAPE.
3. Mettre le magnétocassette sur le mode d'enregistrement.
4. Régler **VR401** sur **4.1 mV** ± **0.3 mV** du VTVM.



TECHNISCHE DATEN

■ VERSTÄRKERTEIL

Ausgangsleistung	
Musiki	10 W (2x5 W, 10% klirr, 4Ω)
Lautsprecherimpedanz	4Ω~16Ω
Eingangsempfindlichkeit und-impedanz	
Micro (MIC)	1,5 mV/1,5 kΩ
Klangregler	10 kHz, +6 dB ~ –12 dB
Lautstärkekonturregler	100 Hz, +6 dB (Lautstärke auf –30 dB)

■ UKW-TUNERTEIL

Wellenbereich	87,5~108 MHz
Zwischenfrequenz (ZF)	10,7 MHz
Eingangsempfindlichkeit (bei 1 kHz, Geräuschspannungsabstand 26 dB, 40 kHz mod.)	3,8 μV (75Ω)
Spiegelverhältnis	7 dB (98 MHz)
Geräuschabstand MONO	55 dB
Gesamtklirrfaktor (bei 1 kHz, 60 dB, 40 kHz mod.)	
Mono	0,3%
Stereo	0,5%
Übersprechdämpfung (Eingang 60 dB, 40 kHz mod.)	
1 kHz	35 dB

■ MW/LW-TUNERTEIL

Wellenbereiche	
MW	527 ~ 1605 kHz
LW	150 ~ 350 kHz
Zwischenfrequenz (ZF)	450 kHz
Eingangsempfindlichkeit (50 mW)	
MW	200 μV/m (1 MHz)
LW	500 μV/m (250 kHz)

■ PLATTENSPIELERTEIL

Plattenspielersystem	Riemenantrieb
Plattenteller	28 cm
Plattentellerdrehzahl	33-1/3 U/min. und 45 U/min.
Plattenspierlermotor	Electronisch gesteuerter Gleichstrommotor
Tonabnehmer	Keramischer-Tonabnehmer (EPC-13STH)
Abtastnadel	Saphir-Spitze (EPS-41ST)
Auflagekraft der Abtastnadel	5,5 g

■ TONBANDTEIL

Typ	Autostop-Cassettensystem mit Pausetaste
Spurlage	4 Spuren/2 Kanäle
Motor	Electronisch gesteuerter Gleichstrommotor
Aufnahmesystem	Wechselstrom-Vormagnetisierung, 53 MHz
Löschsystem	Magnetisch
Bandgeschwindigkeit	4,75 cm/s
Leistungsbandbreite	50 Hz ~ 12 kHz
Gleichlaufschwankungen	0,2% (bewertet)
Fremdspannungsabstand	40 dB (A-WTD)

■ ALLGEMEINE DATEN

Leistungsaufnahme	30 W
Netzspannung	Wechselstrom 50 Hz/60 Hz, 220V
Abmessungen (BxHxT)	380 x 129,5 x 408 mm
Gewicht	3,8 kg

MESSUNGEN UND EINSTELLUNGEN

■ **Radio**

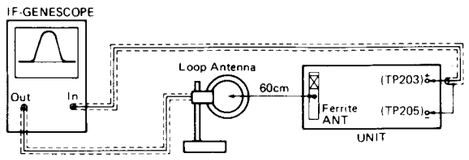
Prüfpositionen

- Lautstärkeregler . . . . . Maximum
- Equalizer . . . . . Mitte
- Balanceregler . . . . . Mitte
- Ausgang des Signalgenerators sollte nicht höher als notwendig sein, um eine Ausgangsanzeige zu erhalten.
- Vor der Abgleichung überprüfen, daß das Lautsprecher-System an den Receiver angeschlossen ist (oder Blind-Lastwiderstände verwenden).

MW-ZF-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Gerät auf MW stellen.
3. Das Radio auf einen Punkt ohne Interferenzen abstimmen.
4. **T203** auf maximalen Ausgang und symmetrische Kurven abstimmen.

Zustand des ZF-Ablenkgenescopes:
Frequenz . . . . . 450 kHz.



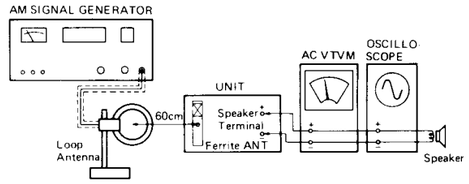
MESSUNGEN UND EINSTELLUNGEN

■ **Radio**

MW-HF-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Gerät auf MW stellen.
3. Radio und Signalgenerator auf **510 kHz** einstellen. **(Die Skalennadel auf die linke Seite der Skala oder untere Frequenzkante stellen.)**
4. **L203** für maximalen Ausgang einstellen.
5. Radio und Signalgenerator auf **600 kHz** einstellen.
6. **L202** für maximalen Ausgang einstellen.
7. Radio und Signalgenerator auf **1670 kHz** einstellen. **(Die Skalennadel auf die rechte Seite der Skala oder obere Frequenzkante stellen.)**
8. **CT204** und **CT203** für maximalen Ausgang einstellen.
9. Schritte 3. ~ 8. wiederholen.

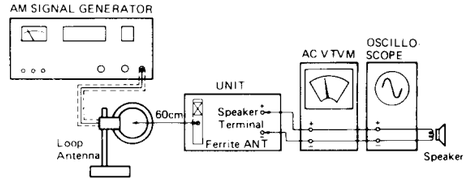
Zustand des Generators:
Modulation 30%
Modulation Frequenz . . . . . 400 Hz



LW-HF-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Gerät auf LW stellen.
3. Radio und Signalgenerator auf **143 kHz** einstellen. **(Die Skalennadel auf die linke Seite der Skala oder untere Frequenzkante stellen.)**
4. **L209** für maximalen Ausgang einstellen.
5. Radio und Signalgenerator auf **145 kHz** einstellen.
6. **L208** für maximalen Ausgang einstellen.
7. Radio und Signalgenerator auf **353 kHz** einstellen. **(Die Skalennadel auf die rechte Seite der Skala oder obere Frequenzkante stellen.)**
8. **CT206** und **CT205** für maximalen Ausgang einstellen.
9. Schritte 3. ~ 8. wiederholen.

Zustand des Generators:
Modulation 30%
Modulation Frequenz . . . . 400 kHz



UKW-ZF-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Gerät auf UKW stellen.
3. Das Radio auf einen Punkt ohne Interferenzen abstimmen.
4. **T201** auf maximale Amplitude und symmetrische Kurve einstellen. (Siehe Abb. 1)
5. **T202** auf maximale Amplitude und gute Lineartiät zwischen etwa den ± 100 kHz Marken einstellen. (Siehe Abb. 2)

HINWEIS: Vor der Abgleichung den Kern von **T202** ganz in Gegenuhrzeigerrichtung drehen.

Zustand des ZF-Ablenkgenescopes:
Frequenz . . . . . 10.7 MHz

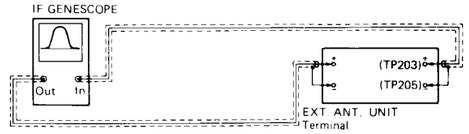


Fig. 1

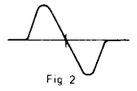


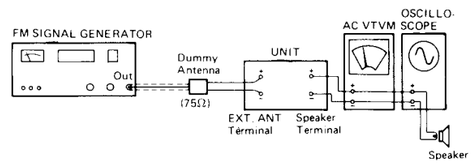
Fig. 2

UKW-HF-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Gerät auf UKW stellen.
3. Radio und Signalgenerator auf **87,25 MHz** einstellen. **(Die Skalennadel auf die linke Seite der Skala oder untere Frequenzkante stellen.)**
4. **L205** und **L204** für maximalen Ausgang einstellen
5. Radio und Signalgenerator auf **108.40 MHz** einstellen.
6. **CT202** und **CT201** für maximalen Ausgang einstellen. **(Die Skalennadel auf die rechte Seite der Skala oder obere Frequenzkante stellen.)**
7. Schritte 3. ~ 6. wiederholen.

HINWEIS: Alle drei Ausgang-Anzeigen sind vorhanden, die Einstellungen müssen mit der Mittenfrequenz erfolgen.

Zustand des Generators:
Modulation 30%
Modulation Frequenz . . . . . 400 Hz



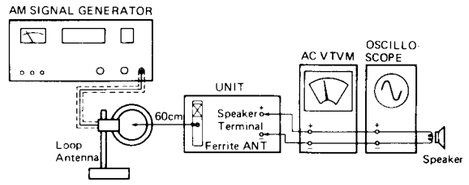
MESSUNGEN UND EINSTELLUNGEN

■ **Radio**

MW-HF-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Gerät auf MW stellen.
3. Radio und Signalgenerator auf **510 kHz** einstellen.
   (Die Skalennadel auf die linke Seite der Skala oder untere Frequenzkante stellen.)
4. **L203** für maximalen Ausgang einstellen.
5. Radio und Signalgenerator auf **600 kHz** einstellen.
6. **L202** für maximalen Ausgang einstellen.
7. Radio und Signalgenerator auf **1670 kHz** einstellen.
   (Die Skalennadel auf die rechte Seite der Skala oder obere Frequenzkante stellen.)
8. **CT204** und **CT203** für maximalen Ausgang einstellen.
9. Schritte 3. ~ 8. wiederholen.

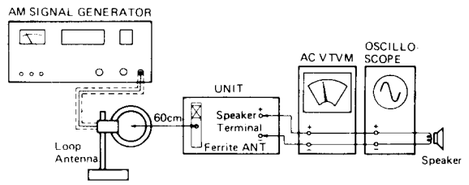
Zustand des Generators:
Modulation 30%
Modulation Frequenz . . . . . 400 Hz



LW-HF-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Gerät auf LW stellen.
3. Radio und Signalgenerator auf **143 kHz** einstellen.
   (Die Skalennadel auf die linke Seite der Skala oder untere Frequenzkante stellen.)
4. **L209** für maximalen Ausgang einstellen.
5. Radio und Signalgenerator auf **145 kHz** einstellen.
6. **L208** für maximalen Ausgang einstellen.
7. Radio und Signalgenerator auf **353 kHz** einstellen.
   (Die Skalennadel auf die rechte Seite der Skala oder obere Frequenzkante stellen.)
8. **CT206** und **CT205** für maximalen Ausgang einstellen.
9. Schritte 3. ~ 8. wiederholen.

Zustand des Generators:
Modulation 30%
Modulation Frequenz . . . . 400 kHz

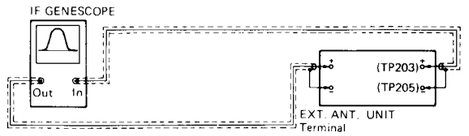


UKW-ZF-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Gerät auf UKW stellen.
3. Das Radio auf einen Punkt ohne Interferenzen abstimmen.
4. **T201** auf maximale Amplitude und symmetrische Kurve einstellen. (Siehe Abb. 1)
5. **T202** auf maximale Amplitude und gute Lineartiät zwischen etwa den ± 100 kHz Marken einstellen. (Siehe Abb. 2)

HINWEIS: Vor der Abgleichung den Kern von **T202** ganz in Gegenuhrzeigerrichtung drehen.

Zustand des ZF-Ablenkgenescopes:
Frequenz . . . . . 10.7 MHz



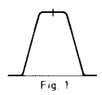


Fig. 1

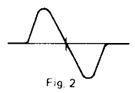


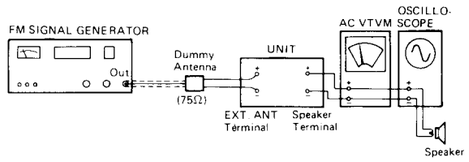
Fig. 2

UKW-HF-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Gerät auf UKW stellen.
3. Radio und Signalgenerator auf **87,25 MHz** einstellen.
   (Die Skalennadel auf die linke Seite der Skala oder untere Frequenzkante stellen.)
4. **L205** und **L204** für maximalen Ausgang einstellen
5. Radio und Signalgenerator auf **108.40 MHz** einstellen.
6. **CT202** und **CT201** für maximalen Ausgang einstellen.
   (Die Skalennadel auf die rechte Seite der Skala oder obere Frequenzkante stellen.)
7. Schritte 3. ~ 6. wiederholen.

HINWEIS: Alle drei Ausgang-Anzeigen sind vorhanden, die Einstellungen müssen mit der Mittenfrequenz erfolgen.

Zustand des Generators:
Modulation 30%
Modulation Frequenz . . . . . 400 Hz



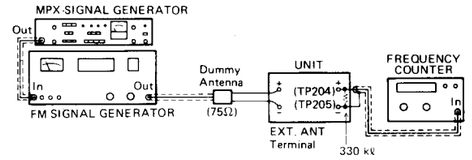
MESSUNGEN UND EINSTELLUNGEN

■ **Radio**

UKW-STEREO-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Den UKW-Betriebsart-Wahlschalter in die FM AUTO position stellen.
3. Radio und Signalgenerator auf **98 MHz** einstellen.
4. **VR201** auf **38 kHz** ± **100 Hz** auf Frequenzzähler einstellen.
5. Einen Stereosenden einstellen und überprüfen, daß die Frequenz bei 38 kHz bleibt.

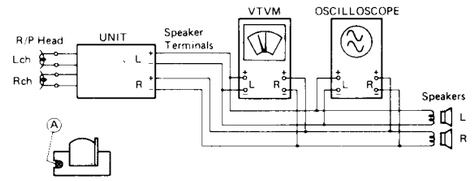
Zustand des Generators:
Modulation 0%
Modulation Frequenz . . . . . 0 Hz
Modulationsrate des 19 kHz
Pilotsignals 9%



■ **Tonband**

KOPFAZIMUTH-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Wiedergabe-Testband QZZCAC. (10 kHz, –20 dB).
3. Schraube (A) für maximale Anzeige für gleichen Ausgang auf beiden Kanälen einstellen.
4. Nach der Abgleichung die Kopfeinstellschraube (A) mit Farbe siegeln.



AUFNAHMEVORMAGNETISIERUNG-ABGLEICHUNG

1. Testausrüstung wie gezeigt anschließen.
2. Das Gerät auf TAPE stellen.
3. Cassettendeck auf Aufnahme stellen.
4. **VR401** für **4.1 mV** ±**0.3 mV** auf Röhrenvoltmeter einstellen.